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Surgery in Peptic Ulcer

Dr. Roy Huggard, Vancouver, B.C.

This is an extensive subject and as time is short details must be passed by. One hopes that the problem will become clarified. Peptic ulcer is a common disease. Experience with the forces emphasizes its widespread incidence and in civil life it provides one of the commonest maladies we encounter. It follows, therefore, that since 6% of peptic ulcers are surgical lesions, the gross surgical lesions are on the increase. In addition there are large numbers of recurrences from previous conservative surgery. With these few opening remarks, let us examine the subject.

We accept that the plain anatomical, physiological and pathological facts are well known. It is not our purpose to discuss these in any detail, but rather to deal with the indications and operative procedure employed.

Certain facts seem apparent. Hyperacidity has a definite relationship to this disease. What produces this excess of acid we do not know; but that it is an important factor few will deny. There is no ground for ceaseless debate on medical versus surgical treatment. It is a problem of management. Good team work between physician and surgeon is most essential. One may add that the investigation of the psycho-somatic aspect is most important. No single method is a panacea and success is dependent upon precise and careful study, with meticulous attention to detail. Team work is indispensable. We are certain none will deny that there are lesions which require surgical correction. Differences of opinion arise as to when a lesion requires surgical correction. By the same token some confusion exists as to type of surgical procedure indicated. We trust we shall be able to shed some light on this subject as we proceed.

It may be well to define some of the terms currently used. The use of the term "perforation" concerns only the lesion that ruptures into a free peritoneal cavity either from the "acute perforation" of duodenum or stomach as the case may be. The term "penetration" is used to describe that type of lesion which has involved or actually penetrated adjacent organs such as pancreas or liver. Perforations are surgical emergencies and acute catastrophes, while penetrations are not surgical emergencies but are the products of long standing disease.

Indications for Surgical Treatment

What then are the indications for surgical interference in duodenal and gastric ulcer?

1. Cases of non-obstructive chronic duodenal ulcer associated with hyperacidity, hyperperistalsis and hypersecretion in which pain is difficult to relieve and in which it is obvious that conservative management is ineffective.

2. Combined lesions i.e. the patient has a chronic gastric and chronic duodenal ulcer.

3. Penetration of posterior wall of duodenum or stomach with or without haemorrhage.

4. Recurrence of disease following such procedures as pyloroplasty.

5. Cases of gastro-jejunal ulceration not amenable to management.

6. Cases of hour glass stomach.

7. All cases of lesions of the greater curve.

8. Cases of gastric ulcer where suspicion is focused on possible malignant change.

9. It goes without saying that acute perforation is a surgical emergency.

10. All cases of duodenal stenosis.

Inasmuch as the difference in treatment of duodenal and gastric ulcer is so distinct we shall treat them separately.

Treatment of Duodenal Ulcer

When should one consider surgery in chronic duodenal ulcer?

(a) **Perforation.** In acute perforation the need of early diagnosis is essential and simple closure is clearly indicated. We close such perforations by the method advocated by Roscoe Graham, using three silk sutures and an omental graft. Upon recovery these patients pass to the control of the physician for management. Here a word might be in order regarding some popular fallacies concerning perforation. Distinguished surgeons have observed in the past, that a perforation usually cured the disease. This belief gave rise to various operative techniques such as cauterization and closure as a mode of therapy in the non-perforated lesions, a procedure of election. We now know that this is not true. We have operated upon many perforations in a second emergency and a few in a third event. We are certain you have all had similar experiences. Further in our experience, approximately 20% of these cases develop sequelae that require elective surgery at some future date. Certainly 50% of these cases have troublesome

symptoms and all require adequate supervision. That perforation ends all troubles is a myth, and has not been the case with us.

(b) **Stenosis.** When stenosis of the duodenum, loosely referred to as "pyloric stenosis," becomes a feature few will deny that this is a surgical indication. There is, however, much difference of opinion as to the procedure. Most, we feel, would advocate posterior gastro-enterostomy. We do not subscribe to this point of view. In the very elderly, with long standing disease and who are therefore poor surgical risk it would then be an operation of necessity. In all other cases we feel operation is contra-indicated. It is readily argued that these people have low or absent free acid values, that remote results are excellent and that recurrence is exceedingly rare. That has not been our experience. In a substantial proportion of these cases, once emptying of the stomach has been restored, free acid values begin to soar. We have observed, particularly in the younger age groups, a much higher incidence of marginal ulcer than heretofore thought possible. We do not believe that any procedure that stops short of diminishing gastric secretion is sound, except in those patients who are very poor surgical risks. In addition, commonly associated with duodenal stenosis there may be recurrent haemorrhage. This added complication is not amenable to a conservative surgical procedure.

(c) **Penetration.** Another clear surgical indication may be found when penetration of a duodenal ulcer with or without haemorrhage has occurred. The clue is usually found in the change in the character of the pain. From periodicity and food relationship or alkali control, it becomes persistent and boring in character. The stricken can find no relief. This persistent boring pain is frequently referred to the back, suggesting pancreatic involvement. There is no relief night or day, and many of these patients may easily become addicts if narcotics are injudiciously administered. It is surprising how many of these people have tried many doctors and many remedies. Nothing short of a radical operation will suffice and we may say that results in this type of case are most gratifying. Conservative procedures have little if any indication.

(d) **Haemorrhage.** The question of recurrent haemorrhage has always been provocative of much debate. We have adopted a definite policy. Briefly it is: that those patients over 45 years of age where haemorrhage has occurred twice require surgery. These are prepared for elective management and radical surgery is done. Certainly here again there is little if any ground to warrant a conservative operation. Such procedures do not control recurrent haemorrhage and usually do great harm.

These in the main constitute the basis for surgical therapy in duodenal ulcer.

Surgical Procedures in Duodenal Ulcers

There are three standard types of surgical attack used in duodenal ulcer:

1. Pyloroplasty.
2. Gastro-enterostomy.
3. Gastric resection.
4. Vagotomy.

We believe the rationale of surgery in this disease is to radically reduce acid secretion. This being so, we employ as a standard operation, high subtotal gastric resection. An occasional case by virtue of age, debility, and risk is reserved for a conservative procedure. Inasmuch as these are nearly always stenotic cases, gastroenterostomy is done. Pyloroplasty is never performed. We have never been impressed by the results following pyloroplasty.

Before concluding this discussion upon duodenal ulcer, the question of vagotomy arises. Results in centres where it has been used widely suggest that it merits consideration. We have as yet insufficient experience to speak with conviction. However, we believe two types of cases have possibilities in this direction. With the first type we are all familiar.

(a) These are cases in the young-age group with extremely high free acid secretion, hypermotility, and intractable symptoms. These have, as a rule, no advanced pathological changes, but defy careful and scientific medical management. These cases respond little, if at all, to medical treatment and turn to surgery as a last resort. Certainly in this type of case there is no room for any conservative procedure. We feel certain all are agreed on that score. Vagotomy, it would seem, offers some benefit and is a less mutilating operation. We are using it in this type of case.

(b) The second type of case is one of disappointment; and is made up of those patients who have submitted to a well done partial gastrectomy followed by a recurrent stomal. That stomal ulcers recur following gastrectomy none can deny and these are causes of deep regret to the surgeon. In most of these, the door is closed for further direct attack and hitherto we have depended upon medical management. It would seem that vagotomy has something to offer in well chosen cases. We are so applying it, in those cases difficult of medical management. We hope a few years hence to be more exactly informed upon this question. A word of caution would not be amiss. Like all new procedures it has, of course, limitations. To date we have seen no evidence to indicate that it is a substitute for established surgical treatment under proper indications, in other than those mentioned above. Certainly it is no cure for stenosis, penetration or haemorrhage.

Treatment of Gastric Ulcer

We now pass on to the subject of gastric ulcer. In this realm we are dealing with an organ that is the common seat of carcinoma and we all know too well the dismal prognosis of cancer of the stomach. The relationship of gastric ulcer and carcinoma cannot be factually determined but we are convinced positively that such exists. No useful purpose will be served by entering into detailed debate. We are all agreed that each one's opinion is a matter of personal conviction. This factor of course influences our handling of these cases but there is an increasing trend to regard these as surgical problems. The penetrated gastric ulcer with or without haemorrhage is accepted, as in duodenal ulcer, to be surgical. Hour glass contractures as stenotic problems are accepted as surgical. Deformities of the greater curve are looked upon as warranting surgery because of the high percentage relationship to cancer. However, what to do with the simple lesser curve ulcer provokes debate. As time passes, with added experience, we are rapidly taking the view that most of these are surgical problems. This is founded upon two types of experience. The first and tragic one, and all have seen these, is the case upon "therapeutic test" for 3 to 6 weeks or longer to determine healing by X-ray or gastroscopy, the former being the most widely used. Positive healing is interpreted and a feeling of security is aroused which 2 or 3 months later is shattered by finding an inoperable carcinoma upon laparotomy. Too late!—much too late! The second type of experience is founded upon those cases that appear to heal so readily upon simple medical management, but break down just as readily upon resumption of economic activity. It is not denied that many by virtues of fortunate circumstances may adequately control their activities and so order their affairs as to suit their disease. This, however, is the exception. Our experience has been in concert with the physician to submit more and more of these cases to surgery at a much earlier date than was the custom a few years back. To sum up, it can be said that gastric ulcer is much more of a surgical proposition than is duodenal ulceration. If the appalling ravages of gastric carcinoma are to be controlled to any appreciable degree, are we not forced into this position?

Operative Procedure in Gastric Ulcer

As to choice of operative procedure, it is felt that high sub-total gastrectomy only should be used. We believe that the indication is founded upon the need to remove that portion of gastric mucosa prone to ulcerative change, and incidentally where most carcinoma originates. Hence, the need for a thorough operation so planned as to include the removal of the curvature. You will note the

rationale for gastrectomy in gastric ulcer differs from that in duodenal ulcer, morphologically these are two different diseases.

The objections to gastrectomy are many, chiefly the higher mortality rate. We do not feel that this is now a factor. Rapidly falling mortality rates due to improved pre-operative management, remove the once held fear of great risk. If skill and team work are attained all doubts will be dispelled.

Pre-Operative Care

Thorough pre-operative care is paramount. This may require one to three weeks in hospital and must be followed diligently.

1. Fluid and electrolyte replacement.
2. Restoration of blood values to 4,000,000 by transfusions, etc.
3. High protein intake 100 grms. per day—parenterally as hydrolysates where indicated to serum levels of at least 6 grms. per cent or better.
4. As high caloric intake as possible 3,000-4,000 calories per 24 hours—this may be limited to stenotic cases.
5. High vitamin administration—parenterally if indicated.
6. Daily gastric lavage and suction to insure adequate gastric decompression if stenosis is a factor.
7. Daily breathing exercises to restore adequate pulmonic aeration.
8. In severe cases of stenoses of some standing a preliminary jejunostomy may be done for adequate feeding. These cases are rare nowadays but do occur and this useful method should be borne in mind to overcome severe starvation and secure adequate pre-operative nutrition. Such a regime is indispensable. Adequate nutritional rehabilitation is of supreme importance.
9. The anaesthetic now used is cyclopropane plus curare. This has proved a great step forward.

Types of Stomach Operations

Of all the various procedures founded upon the Bilroth I and II operations, we prefer a Hoffmeister-Finsterer type of operation with antecolic loop. Great faith is held in the Hoffmeister valve in preventing efferent loop filling, so common after the Polya operation and productive of remote symptoms. The anterior loop is chosen as it allows adequate mobility in high $\frac{3}{4}$ resections and avoids the hooking up of the mesocolon and transverse colon. We are aware of Waggenstein's objection regarding higher postoperative free acid values in low jejunal anastomosis, but as we shall shortly see have not observed this as a feature in man. You are aware, of course, that his work was founded upon studies on dogs. Great care is used in duodenal stump closure; 3 layers of suture; two

of catgut, one of silk and an omental graft. It is not our practice always to remove the first portion of duodenum. If penetration and fixation are factors—prepyloric resection is done with complete gastric mucosa removal after Bancroft's recommendation. The lesion is left in situ, and all pyloric gastric mucosa is removed. Thereby all physiological principles are observed. The lesion heals by scar and there is no further trouble. The enthusiastic and unwary may feel compelled to excise the first portion of duodenum and in so doing tragedy may ensue due to leakage following inadequate closure or common duct damage. In question of doubt, where duodenal disease is extensive, a Bancroft procedure will never cause regret—it is safe and sound.

Postoperatively, the Regime Consists Of

1. Gastric suction.
2. Clear fluids by mouth.
3. Morphia as required.
4. Electrolyte and fluid replacement by vein.
5. Protein hydrolysates by vein.
6. Vitamins parenterally.
7. Early rising—24 to 36 hours.

The gastric tube is usually removed in 3 to 5 days and soft protein feedings established by 3 or 9th day—leaving hospital 12th to 14th day. Remote management consists of frequent high caloric—high protein—high vitamin feedings until a 3-meal a day regime is reached in 6 months to a year—this is a variable.

Opthalmic Indications of Systemic Disease

A. J. Elliot, M.D., Toronto

There are a number of systemic diseases which exhibit ocular manifestations that may be of diagnostic and possibly prognostic importance to the physician. It is my present purpose to briefly discuss a few of these in which such findings may be of real assistance to him in the solution of his problems.

In his investigation of certain cases there are a number of points in the ocular history about which the physician should enquire. Has there been a loss of vision and if so was it gradual in onset or sudden and is it in one or in both eyes? A Snellen chart is always available to record the visual acuity. Does the patient complain of a loss of part of his visual field? Detailed studies of the visual fields on a perimeter are not required as these may easily and quickly be determined by using a small white object stuck on the end of a pencil. Has the patient complained of double vision? A pencil flashlight is all that is required

In this operation, weight loss is heavy, strength takes time to return and economic restoration is variable from 3 to 6 months.

Adequate follow-up-encouragement, use of Hydrochloric acid by mouth, and other methods to facilitate rehabilitation must be stressed.

Mortality

Chief Causes of Mortality Are:

1. Technical error—duodenal stump leakage.
2. Chest complications—atalectasis, etc.
3. Thrombophlebitis—embolism.

Morbidity

Chief Causes of Morbidity Are:

1. Chest complications.
2. Wound infection.
3. Thrombophlebitis.

Summary

In conclusion we stress that the management of peptic ulcer is one of team work. If surgical indications are present, subtotal gastrectomy is the procedure of choice. The indications for vagotomy are mentioned. Mortality rates in gastrectomy are now below 3% and will fall lower. The surgical management is detailed in all phases and precise attention to detail is the secret of success. The greatest single factor in achieving results is the will the patient possesses to become economically useful again.

to test the motility of the extra-ocular muscles.

Of fundamental importance is the actual and symmetrical size of the pupils and their reaction to light and accommodation. The direct and consensual reaction to light should be noted. The accommodative reaction may be determined by having the patient look at a close object such as the examiner's finger held at about six inches from the eye.

Ophthalmoscopic study through the undilated pupil may be made easier by instructing the patient to turn the eye slightly inwards. This will prevent the sudden constriction of the pupil and will allow inspection of the optic disc and adjacent retina.

I shall now discuss a number of ophthalmic manifestations which indicate general disease.

Papilloedema or choked disc is due to a swelling of the optic nerve head as a result of increased intracranial pressure or interference with the venous circulation of the orbit. Intracranial tumors or abscesses, hydrocephalus, meningitis, intracranial sinus thrombosis and subarachnoid

* From the Department of Ophthalmology, University of Toronto, and the Toronto General Hospital. Read before the Manitoba Medical Association, Winnipeg, September 25, 1946.

haemorrhage are causes of such swelling.

In the early stage of papilloedema the retinal veins are congested and the disc is pink, the margins are blurred above, below and nasally, and the physiological cup is filled in. Minute pin point haemorrhages should be noted as their presence will differentiate this stage from the similar appearance of the disc in high degrees of farsightedness. In the later stages the nerve head is well elevated, the retinal veins are distended, haemorrhages are marked and a macular fan may be seen. If the pressure is not relieved, optic atrophy follows with permanent loss of vision.

There are instances, especially after a recent head injury, where the disc appears as if an early papilloedema were present. In these cases a study of the visual fields is of assistance in differentiating a pathological disc from a normal one with blurred margins. The earliest visual field sign in papilloedema is an enlargement of the blind spot due to oedema at the disc. If this oedema involve the macular area, there may be a blurring in the central part of the visual field. In the later stages the visual field indicates a concentric contraction, which marks the onset of optic atrophy and consequent loss of vision.

Optic Neuritis and Retrobulbar Neuritis result in a loss of central vision usually in one eye and commonly in the young adult. There may be pain in and around the eye on movement of the globe or on digital pressure over the insertion of the superior rectus muscle. Often the contraction of the pupil is not sustained on prolonged stimulation by light.

In optic neuritis the inflammation is at the nerve head; and on ophthalmoscopic examination there is hyperemia of the disc with blurring of its margins. In retrobulbar neuritis the inflammation is behind the nerve head and the optic disc appears normal. This latter condition has given rise to the aphorism, "the patient sees nothing and the doctor sees nothing."

Visual field examination is important in both conditions and a large central scotoma is always found sooner or later.

In the majority of these cases the patient later develops Disseminated Sclerosis, and a careful neurological examination is thus indicated. In some many years may pass before other manifestations of this sclerosis appear. The local inflammation in the optic nerve subsides in 2 or 3 weeks in the majority of cases with a return of normal vision.

Less commonly, Bilateral Retrobulbar Neuritis with central scotomata occurs in Disseminated Sclerosis, methyl alcohol poisoning and certain hereditary optic atrophies.

Optic Atrophy—The distinction between primary and secondary optic atrophy is an ophthalmoscopic one rather than a pathological differentiation; the essential feature in both instances is a pallor of the disc. In primary optic atrophy the edges of the disc are sharp, the vessels appear normal and the physiological cup is not filled in; whereas in secondary optic atrophy the disc margins are blurred, the vessels are contracted and the physiological cup is obliterated.

The chief cause of primary optic atrophy is tabes. It may be the first sign and other signs and symptoms may be long delayed. The patient should be examined for the presence of Argyll Robertson pupils; the pupils are small, often irregular in shape and unequal in size, and there is absence or impairment of the light reflex with marked accentuation of the accommodative response. The visual fields show progressive peripheral contraction which may result in blindness in a year or two. Less common causes of primary optic atrophy are disseminated sclerosis, cerebral tumors, certain hereditary diseases; and poisons such as lead, methyl alcohol and quinine.

Secondary optic atrophy follows long-standing cases of papilloedema and optic neuritis. The ophthalmoscopic appearance is due to the inflammatory reaction and the production of fibrous tissue at the nerve head.

Exophthalmos and Graves' Disease—The exophthalmos is usually bilateral but unilateral proptosis does occur. Also the cardinal signs of exophthalmic goitre, e.g., lid lag and lid retraction of both upper and lower lids, may be more marked on one side. There are cases of exophthalmos without thyroid intoxication in which there is a paralysis of the external ocular muscles. Also there are cases of very severe exophthalmos in which there is oedema of the lids and conjunctiva. There is danger of corneal ulceration in marked exophthalmos if the lids are not sutured together.

In addition to the above causes of exophthalmos are sinus disease, sinus mucocoele, carcinoma of the antrum, meningioma, aneurysm of the cavernous sinus and orbital cellulitis. These more commonly result in unilateral proptosis. In examining for unilateral exophthalmos it is wise for the examiner to stand behind the patient and look down over the patient's forehead so as to compare the relative amount of protrusion of each eyeball.

Ocular Palsies—Ocular palsies may be supranuclear, nuclear or infranuclear. If the paralysis be in terms of movements of both eyes the lesion is either in the nucleus or supranuclear in the cerebral hemispheres. Infranuclear palsy is the common finding in which an isolated muscle is

paralyzed. The third and sixth nerves are affected more frequently than the fourth.

In third nerve palsy there is a partial or complete ptosis, the pupil is dilated and there is no reaction to light or accommodation and the eye is turned downwards and outwards. In sixth nerve palsy the eye is deviated inwards and there is a constant and annoying double vision. A paralysis of the sixth nerve can not always be used to determine the site of the intracranial lesion as it is often a false localizing sign.

There are numerous causes for ocular palsy. **Trauma** frequently affects the third and sixth nerves. Of the **inflammatory causes** syphilis is the most important and may take the form of a gummatous meningitis or tabes dorsalis. Other inflammatory lesions are pneumococcal meningitis and chronic otitis media with petrositis. Disseminated sclerosis practically never involves the third nerve while the sixth nerve is frequently affected. Of the **neoplasms** producing ocular palsy there are meningiomata of the lesser wing of the sphenoid, metastases to the orbit, and carcinoma of the nasopharynx. **Vascular** lesions from intracranial aneurysms, diabetes and hypertensive accidents are not uncommon causes of ocular palsies.

Ophthalmoscopic Changes in Hypertension, Nephritis and Diabetes

In **Essential Hypertension** the diagnostic points of retinal arteriosclerosis are compression of the veins at the arterio-venous crossings, narrowing and irregularity in the calibre of the retinal arteries and flame-shaped haemorrhages alongside the vessels. Arteriosclerotic retinitis is a further stage after the above changes have been present for some time. Hard white exudates are present between the disc and the macula and at times there is an irregular macular star or fan. There is no oedema at the disc nor large cotton wool patches of exudation.

Malignant Hypertension is the malignant phase of essential hypertension in which the increased intracranial fluid pressure results in headache, loss of vision and papilloedema. These patients often first present themselves at eye clinics. The fundus picture reveals a constant bilateral papilloedema with numerous flame-shaped haemorrhages alongside the blood vessels. The exudates are soft cotton-wool patches and a macular star may appear later.

Albuminuric Retinitis usually refers to chronic nephritis with hypertension. Retinal lesions are rare in chronic nephritis without hypertension. In albuminuric retinitis papilloedema is present but is less marked than in malignant hypertension and is not confined to the area around the disc but spreads extensively into the surrounding retina. The retinal vessels show the changes of arteriosclerosis and flame-shaped haemorrhages are present alongside the vessels. Well marked soft cotton wool exudates with blurred edges are found usually around the disc. The macular star figure is present and the retina has more pallor than in malignant hypertension.

Diabetic Retinitis is uncommon under 40 years of age and is not seen in younger individuals with severe diabetes. Vascular hypertension is associated with diabetic retinitis and the retinal vessels are sclerotic. The haemorrhages are well defined and are small and round and are away from the blood vessels. The exudates are hard and white and are centrally placed often forming a solid ring around the macula. Retinal oedema, papilloedema and soft cotton wool exudates do not occur.

In conclusion, although the above remarks were, of necessity, hastily and briefly presented in a somewhat dogmatic fashion, my purpose was to call your attention to the help that these ophthalmic indications of systemic disease, if present, can give to the physician in his attempt to solve some of the problems with which he is so often confronted.

Plasma Proteins

Sydney Israels, B.Sc., M.D., F.R.C.P., (C)

Recent research in the borderland between biology, chemistry and medicine has given us many new examples of a fact well-known—that the fundamental processes of life are connected with chemical substances of high molecular weight. Only such substances are capable of great variation—the characteristic of life itself. Of such high molecular weight are the proteins, and without protein no life is possible.

General interest has recently been stimulated in the study of the proteins of the serum. The result of this intensive study is that many new

products have been added to our therapeutic armamentaria.

As you are all aware, it is customary to split the protein fractions of the serum into three constituents—albumen, globulin and fibrinogen. Although we usually think of these as three separate entities, they are bound together in the serum in a complex fashion.

The total protein representing the sum of all three fractions varies with the age of the subject and the method of analysis. Of the usual analytical methods the Kjeldahl has best stood the test

of time and yields accurate results. You all know its general principles—the digestion of the protein, the release of the N_2 as NH_3 , and the distilling of the NH_3 over into a known amount of acid. The neutralization of the acid gives the index of the N_2 in the protein, and from this the amount of protein is calculated.

Colorimetric methods yield comparable results. They are based on the assumption that the protein studied contains amino acids having the benzene ring. Total protein values are given as 6-8 gms./100cc. of plasma in the adult.

The protein fractions are usually done by salting out the globulin with 22.5% Na_2SO_4 and estimating the N_2 in it by the Kjeldahl or colorimetric methods. The usual values stated are 1.3-2.7gms./100ml. for globulin, and 4.7-5.7gms./100ml. for albumen. It should be remembered that all these molecules are of a large size and will not pass the capillary membrane under normal circumstances. The fibrinogen is the largest and the albumen the smallest molecular size.

The origin of the proteins has been for many years a matter of conjecture and is so at this time. For the most part their source is not known except for a few facts. We know that liver disease is associated with low albumen and especially low fibrinogen levels, which would point to the liver as the likely source of these substances. It is usually felt that the Reticulo-Endothelial system may elaborate these proteins. Recent evidence places the site of globulin formation in the lymph node—possibly in the lymphocytes.

Functions of the Protein Fractions:

(1) The fibrinogen is essential for the clotting of blood. It is converted into fibrin in the process.

(2) The maintenance of osmotic pressure is a second function attributed to plasma protein. Osmotic pressure is dependent upon the number of molecules present in a solution, and since albumen is greater in amount than any other constituent and is of smaller molecular size, it follows that albumen exerts the greatest osmotic force of any of the protein fractions.

In the past, oedema of low protein values was stated as occurring when total protein values were 5 gms. and albumen 2.5 gms. per cent. However, we must revise our ideas on this subject as we have had to revise our ideas on other seemingly basic tenets of medicine. For some unknown reason, the critical level of oedema formation varies with the disease in question. Thus, for nutritional oedema, the critical level is 3 gms. instead of 5 gms./100 per cent, and in children oedema usually does not occur until the albumen reaches 1.2 gms. instead of 2.5 gms. In this connection, it is convenient as a rule, to designate oedema due to low protein as pre-

hepatic, hepatic, or post-hepatic in origin depending on the site of the disease.

(3) The maintenance of blood viscosity is the third function attributed to plasma protein. This is a minor role and comes into importance in circulatory failure due to shock or dehydration. It is then we suggest fluids to thin the blood—the salines and glucose in water in contrast to "thick fluids."

(4) Proteins in the plasma play a part in the buffer system. This is also a minor role. In cases of nephrosis or protein leakage we have then a total ionic reduction and a lengthening of plasma chloride with a shrinkage of bicarbonate.

(5) Immune substances in the blood are present in the gamma globulin fraction.

Variation in the Amount of Each Constituent:

(1) A rise in fibrinogen is an accompaniment of injury or inflammation. Reduction of this fraction occurs in liver disease. Cases of congenital absence of fibrinogen have been reported.

(2) Albumen: This seems to be the most labile of all the constituents. Marked reduction can be expected in disease affecting the renal filter which allows the albumen to escape from the plasma. Such diseases fall into the syndrome known as the nephroses.

Low albumen values occur in disease of faulty albumen formation. This may be of dietary origin where dietary protein is deficient or in liver disease where albumen synthesis is hampered. Such cases of hypoalbumenemia have been recorded in children suffering from liver disease of luetic origin.

(3) Globulin deficiency is rare. Excess occurs in disease of the R.E. system of bone marrow, etc., e.g. Multiple myeloma Kalaazar.

Newer Methods of Protein Study:

The introduction of electrophoretic methods to the study of proteins opened a new era in the study of plasma protein. Electrophoresis, that is the migration of colloidal particles in an electric field, has been known for the past one hundred years. The adaptation of this principle and the use of optical systems to record the results of the study has greatly aided plasma protein research. By this method of research we have been able to further subdivide the fractions of protein mentioned before. Electrophoretic patterns separate albumen, fibrinogen, and alpha, beta and gamma globulins.

The patterns vary with the disease studied, e.g., nephrosis shows a low albumen area; hyperthyroidism a low albumen and high alpha globulin. Some have felt that the day may arrive when these patterns can be read like an E.K.G. as an aid in diagnosis.

During the war the practical use of the protein fractions demanded their production on a larger

scale. Credit for this large scale fractionation program must go to Dr. Edwin Cohn and his associates at Harvard. Their methods of protein fraction separation was by chemical means at controlled temperatures. By this process they have made and concentrated many substances in clinical use today—fibrinogen for use in producing clotting, thrombin, fibrin film for use as membranes, fibrin foam as a hemostatic agent, immune globulin in measles prophylaxis, isohaemoglutins for blood typing, and albumen for use in shock.

Cohn divides the plasma proteins into six fractions:

Fraction I—Fibrinogen and globulin connected with blood clotting.

Fractions II and III—98% of the gamma globulin immunity. Luteinizing hormone.

III (I) Isoagglutins

(II) Thrombin and prothrombin and Complement C¹.

Fraction IV—(I) Protein bound iodine.

(II) Complement C₂. Alkaline phosphatase. Hypertensinogen.

Fraction V—Albumen.

Fraction VI—Alpha globulin. Follicle stimulating hormone.

Before concluding these remarks, I want to mention the work of Whipple, who, using animals and the method of plasmaphoresis to lower serum proteins, has done much to enhance our knowledge of serum proteins and its fractions. Whipple feels that the plasma proteins are derived from a "pro-

tein pool" and are in equilibrium with the other body proteins. Lowering of the protein in the pool is associated with lowered serum proteins. Most tissue protein is synthesised from plasma protein by its modification—adding or subtracting amino acids. If this is true, then the amino acid constitution of these plasma proteins might dictate the basic makeup of the amino acid mixture given to the patient. For example, if we wish to enhance the production of gamma globulin, knowing their makeup will best determine the mixture of amino acids for the purpose.

It follows that if we regard this pool as depleted when plasma protein is lowered, we must give amounts of protein by intravenous in an amount necessary to augment the plasma pool and this is why the usual amounts of albumen given, estimated on circulatory volume, fails to raise the serum protein the calculated amount. In other words, the serum protein is a reflection of the level of the protein pool, and you must increase the protein in the pool before the serum protein rises.

Weech has produced hypoproteinemia by a protein-deficient diet. With this the globulin fraction remained the same and the albumen alone was lowered. Fibrinogen rose in starvation. If the period of protein starvation was long and the period of debilitation also lengthy, he found that regeneration occurred slowly when protein was readmitted to the diet. Proteins were best reformed when the diet contained animal protein and next best when vegetable protein was fed.

Section of Anaesthesiology

P. C. Lund, M.D., Anaesthetist, Deer Lodge Hospital

Abstract

Hypobaric Pontocaine

A New Technic in Spinal Anaesthesia

(*Anaesthesiology*, Vol. 6, 1945)

P. C. Lund, M.D. and J. D. Cameron, M.D.

In reviewing the history of spinal anaesthesia it is interesting to note that it was not until Pitkin in 1927 introduced a hypobaric solution, "spino-caine," that this type of anaesthesia received attention. He claimed a new degree of controllability and increased safety with this method of spinal anaesthesia.

Experimentally it has been shown that dispersion by the force of the original injection, or barbotage, and convection by gravity are the two most important factors in determining the extent of spread of an anaesthetic solution within the subarachnoid space. Diffusion which is caused by differences in osmotic tension is so slow that it

may be disregarded; likewise the cerebrospinal circulation is so sluggish that there is no appreciable convection by this means.

Barbotage, however, introduces variable factors which are very difficult, if not impossible, to control accurately. Convection by gravity which is checked by the absorptive affinity of nerve tissue for local anaesthetic drugs is governed by two factors: first, the difference in specific gravity between the injected solution and that of the spinal fluid; second, the position of the spinal canal. These two factors can readily be controlled accurately by the anaesthesiologist; hence, convection by gravity is the safest and most scientific method of controlling the height and spread of spinal anaesthesia at the present time.

The technics of Etherington-Wilson, Sise, and Howard Jones and their various modifications are all dependent upon convection by gravity.

The ideal spinal anaesthetic agent is one which has such selectivity upon nerve tissue, such low

effective concentration and nontoxicity that it will cause no metabolic changes in the patient. We believe that pontocaine hydrochloride (niphanoid) is the agent most closely approaching this ideal.

According to the U.S. dispensary (6) nupercaine has a toxicity of 500 with power to anaesthetize in a dilution of 1:2000, while pontocaine has a toxicity of 250 with power to anaesthetize in 1:1500 dilution. There are numerous articles in the literature on anaesthesia dealing with the advantages of pontocaine over other spinal anaesthetic agents. These stress fast action time; slight blood pressure drop; low incidence of reactions; low incidence of nausea; vomiting or post spinal headaches; prolonged action time; reliability; low effective concentrations, and low toxicity. In our own series of over 1,000 cases in which pontocaine hydrochloride (niphanoid) was used we arrived at the same conclusions.

Pontocaine hydrochloride has been used extensively as a hyperbaric solution by the addition of glucose, and the height of anaesthesia thus controlled by convection. There are several disadvantages in this technic, however, chief among them being that the head and/or shoulders must be elevated at least fifteen to twenty minutes until the drug is fixed by the nerve tissues; this is a very unfavorable position for a "shocked" or exsanguinated patient or even one with low blood pressure. Accentuated spinal curves tend to pool the anaesthetic solution, producing unpredictable levels of anaesthesia; also much time is wasted when patients require surgical procedures on their dorsal aspects because the posterior sensory nerves must be fixed by the anaesthetic solution before the patient is placed prone.

We wish to describe in detail a technic which we have developed using hypobaric pontocaine in a 0.1 per cent solution. This solution is prepared by dissolving 20 mg. of pontocaine (niphanoid) in 20 cc. of warmed triple distilled water (ampules). It has a specific gravity of 1.001 (16) while of nupercaine is 1.003 and that of spinal fluid approximately 1.007. Thus, this solution is readily controlled by gravity and the low concentration should add a wide margin of safety.

The Etherington-Wilson technic as applied with hypobaric pontocaine is essentially the same as described by Bourne et al. The local anaesthetic at site of puncture includes ephedrine (5-50 mg.) depending on operation, age, blood pressure, etc. Twenty milligrams of pontocaine hydrochloride (niphanoid) is dissolved in 20 cc. of triple distilled water (ampules) at 110 F. (syringes and needles are at room temperature) and the predetermined dose injected, the rate of injection depending on the length of the back and the height desired. The back is straightened to the vertical as soon as

the spinal needle is in position and held there the desired length of time, after which the patient is quickly placed in the Trendelenburg position. A record is kept routinely of blood pressure, pulse and respirations, and an intravenous infusion is started in all major cases.

The term "modified Howard Jones technic" is used for lack of a better one. The patient is placed in the lateral position with the affected side uppermost, the table being level or inclined up or down, depending on the height of anaesthesia desired. The needle is inserted as before and the anaesthetic solution injected. For sacral and lower lumbar anaesthesia the patient is placed in the lateral Trendelenburg position, the bevel of the needle turned caudad and the solution injected very slowly. After injection the patient is immediately placed in Trendelenburg or Depage's position, depending upon the site of operation.

Patients requiring unilateral anaesthesia are placed in position as previously mentioned but the bevel of the needle is turned to the homolateral side or inclined cephalad. Patients requiring high unilateral levels of anaesthesia such as for nephrectomy are placed in the lateral Fowler position, the table being inclined 20 - 45° with the horizontal as soon as the spinal needle is in place. Timing is carried out as with the Etherington-Wilson technic and, after the patient is left the desired length of time in this position, change is quickly made to the lateral Trendelenburg position which obtains for the remainder of the operation. Patients requiring low unilateral levels of anaesthesia, as for orthopedic and neurologic procedures involving the lower extremities, are placed in the lateral Trendelenburg position as soon as the spinal needle is in place and left thus until the surgical procedure is completed.

This technic enables the anaesthesiologist to control more accurately the levels of anaesthesia and smaller doses of anaesthetic drug seem to be sufficient. It does not produce absolute unilateral anaesthesia, but appears to approach this ideal more closely than do other technics.

In general we may say that there was a decrease in pulse rate, in nearly all cases, in low as well as in medium and high spinal anaesthesias; also in nearly all cases there was an early slight rise in blood pressure, which was maintained in a greater or lesser degree throughout. This was probably caused by the ephedrine given in the local anaesthetic at site of puncture. We noted only slight decrease in respiratory excursion even in patients receiving high spinal anaesthesia. A few general factors pertinent to these technics are:

(1) Premedication-Marked drowsiness and amnesia are necessary for success and hence we

use relatively large doses of morphine, scopolamine and nembutal.

(2) Timing—Absolute accuracy is of still greater importance than when employing nupercaine (1:1500) because it ascends more quickly as a result of the lower specific gravity. We do not believe that it is safe to lay down formulas for calculating the length of time to keep the patient upright when employing the Etherington-Wilson technic or the length of time to keep the patient in the lateral Fowler position when employing the modified Jones technic as the rate of ascent varies with dose, rate of injection and position of the patient; thus each operator should develop his own standards. We have found, however, that pontocaine 0.1 per cent solution ascends at a rate almost twice that of nupercaine (1:1500), with the patient sitting bolt upright.

For example, in an average length with the patient's back bolt upright, 12 cc. of pontocaine 0.1 per cent injected in fifteen seconds left upright twenty-five seconds (i.e. ten seconds after completion of the injection) results in sensory anaesthesia to the fourth dorsal segment. Under similar circumstances 18 cc. with the back upright thirty-five seconds results in anaesthesia to the second to third dorsal segment.

Dosage. We have found that smaller doses are necessary for adequate anaesthesia than when employing pontocaine alone or in conjunction with glucose and we feel certain that even smaller doses than we have used would be sufficient in many circumstances because the low minimum effective concentration of pontocaine is being utilized to its full extent and also better control is exercised over the spread of the anaesthetic solutions within the subarachnoid space.

The onset of anaesthesia requires only two to three minutes and thus takes place more quickly than when pontocaine is dissolved in spinal fluid or combined with glucose. It probably takes place more quickly than with any other spinal anaesthetic agent; thus the patient is always ready for the initial incision as soon as painting and draping have been completed. This rapid onset of anaesthesia is probably largely accounted for by the temperature of the anaesthetic solution, i.e. 2-3 degrees F. above that of the spinal fluid.

The Duration of Anaesthesia. This naturally varies with the dose and type of operation. We have not yet had an opportunity to work out a table of maximum time for a certain minimum dose. We have found, however, that 16 to 18 mg. is sufficient for major abdominal procedures requiring two to two and one-half hours of operating time. Twelve to fifteen milligrams is sufficient for major abdominal procedure requiring one and one-half to two and a quarter hours, and 5 to 7 mg. is sufficient for transurethral resections requiring

over one and one-half hours of operating time.

Complications. There have been no severe postoperative sequelae. There was one case of mild headache which cleared up in a week and one case of mild postoperative broncho-pneumonia; this patient (repair of prolapsed rectum by abdominal route) was placed in steep Trendelenburg position over two hours, which interfered with his respiratory exchange.

Disadvantages. These are chiefly those of apparatus, more ampules to break and more solutions, and careful attention to detail is necessary if satisfactory and safe anaesthesia is to be given the patient.

Advantages. (1) The ability to maintain the Trendelenburg or lateral Trendelenburg position throughout aids in the prevention of shock and cerebral anoxia; if these should intervene this position aids in their treatment. It has been shown that the circulation time of blood is increased in high spinal anaesthesia, the adverse effects of this are minimal in the head down position and also this position is ideal for administering a general or intravenous supplementary anaesthetic should one become necessary.

(2) The smaller dosage insures minimal interference with vital processes, favors minimum depression and accounts for decreased postoperative discomfort and sequelae, and decreases the incidence of reactions and toxicity.

(3) The onset of anaesthesia is probably more rapid than with other spinal anaesthetic agents.

(4) The modified Jones technic is time-saving and less manipulation of the patient is required than when the original technic is employed.

(5) The duration of anaesthesia is sufficient for a majority of major operations and for nearly all minor surgical procedures. In a great number of cases the longer-acting spinal anaesthetic agents such as nupercaine produce surgical anaesthesia with resultant depression of vital function and processes over a period much longer than required for the operative procedure, with consequent increased morbidity and probably also increased mortality rates.

(6) Safety—an increased margin of safety is added when employing 0.1 per cent pontocaine solution because a dilute solution will always anaesthetize more safely than a concentrated one or one of an unknown dilution such as results after barbotage.

19 References. Our series of hypobaric pontocaine spinal anaesthesia is now over 2,500 cases and several new techniques have been developed which will be reported on, at a later date.

Abstract

Pain, a discussion of recent progress. Wikler, Abraham: Kentucky M.J., 43:298-303 (Nov.), 1945.

"Correct interpretation of referred pain depends on an exact knowledge of the segments over which the visceral pain impulse travels, for the pain is referred to that area of the skin which is supplied by the corresponding dorsal roots. Thus pain impulses from the heart travel over the middle and inferior cardiac nerves to the corresponding cervical sympathetic ganglia but they then course backwards down to the upper three thoracic sympathetic ganglia whence they join the first three thoracic dorsal roots to join the spinal cord. Successful control of the pain of angina pectoris has been reported following injection of novocaine or alcohol into, or surgical excision of, these thoracic sympathetic ganglia. Section of the corresponding dorsal roots has likewise been successful. The lung parenchyma and visceral pleura are not innervated by pain fibres, but the parietal pleura over the apex is innervated by the brachial plexus, that over the lateral portion of the base of the lung by the intercostals, while the central portion of the base is innervated by the phrenic nerve. Pain from lesions in the biliary system, the liver, stomach and small intestine have been successfully controlled by alcohol injection or surgical resection of the splanchnic nerves, although this does not hold true for the transverse and descending colon.

The uterine fundus is supplied by fibres which enter the spinal cord at the 11th and 12th thoracic segments. This fact has been utilized by Hingson and Edwards in their technique of caudal analgesia for deliveries. They emphasize the necessity of injecting enough novocaine in the epidural space to insure anesthetization not only of the sacral nerves which supply the cervix but also the lower thoracic spinal nerves which supply the fundus. The rectum appears to be supplied with pain fibres from the sacral nerves.

"Reverse" increase in irritability of the cerebral cortex appears to be present in the 'phantom limb' phenomenon since cases have been successfully treated by removal of the appropriate sensory areas of the cerebral cortex.

Pain is a nociceptive stimulus calling for defense on the part of the body. Frequently this results in muscle spasm due to reflex contraction of the muscles innervated by the same or adjacent segments. Prolonged contraction of muscle, however, may itself become a source of pain, thus producing more spasm and starting the cycle over again.

"Such a process is frequently operant in headache, the scalenus anticus syndrome and low back pain. Wolff has shown that painful conditions in the sinuses, the eves, or intracranial structures may evoke continual pain in the muscles of the head, which are interpreted as headache. Massage of these muscles or infiltration with novocaine

often relieves the headache thus proving its muscular origin. Similarly, in the scalenus anticus syndrome, repeated novocaine injection of the muscles often results in complete relief which is not understandable except on the basis of reflex spasm. Similar results have often been reported in cases of low back pain of obscure origin. Very recently, Kabat and others have used prostigmin in such cases. Daily intramuscular injection of 1 mg. of prostigmin with 0.4 mg. of atropine have afforded marked relief from low back pain due to a variety of conditions. These investigators ascribe the relief of pain to a central inhibition of muscle stretch reflexes by prostigmin.

Judovitch and Bates found that when pain distributed in a segmental region was associated with skin tenderness, the pain was nearly always due to conditions about the vertebral column. Where the exact pathology could be demonstrated, the appropriate etiological treatment was indicated. When no cause could be found, repeated injection of the corresponding spinal nerves with novocaine frequently resulted in permanent relief. A similar though more complex process is seen in the typical case of causalgia.

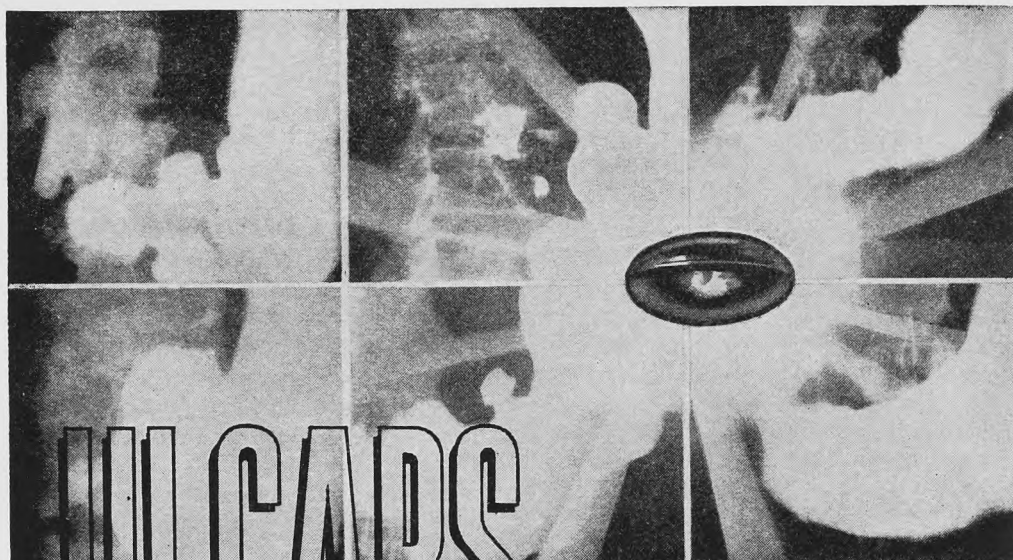
Frequently injection of the segmental sympathetic ganglia results in dramatic relief of pain.

Livingston suggests that continued bombardment of the 'internuncial pool' by impulses from an irritable focus in the periphery may result in perpetual activity of the reverberating internuncial circuits and as he picturesquely says, the internuncial pool may become a whirlpool.

He conceives of the internuncial pool as a regulatory mechanism for directing the flow of energy into particular pathways, thus modifying thresholds and intensities of perceived sensations. Propagation of the disturbance to distant segments would thus be possible and may result in pain in areas remote from the original pain.

This would account for "mirror pain" for example. The theory is very attractive and fits in with some facts that are known about analgesic drugs. We can no longer regard the nervous system as a complex but fixed and static electric switch box. On the contrary, the central excitatory state of the nervous system is continually changing, within limits, in response to external and internal unconditioned and conditioned stimuli. We must therefore regard the nervous system as a whole unit, every part of which, in the process of adaptation undergoes changes which make it more or less reactive to certain stimuli. In other words, in the treatment of pain, we must recognize a fact which most doctors with a general practice have long known intuitively, that we treat no painful backs, but patients with low back pains.

P C. L.



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Dr. Luke and Dr. Brown

Elsewhere you will find some thoughts from Dr. John Brown. These should have appeared in the September issue because September 22, 1810, was the birth date of Dr. Brown. Likewise the October issue should have contained a note about St. Luke because October 18th is St. Luke's Day. Somehow I got hold of the wrong calendar when I took the 22nd of the month to be the Winnipeg Medical Society meeting night. It was, of course, the 18th and a reference to Dr. Luke, as Osler calls him, would have been very much in order on that occasion.

We know very little about the life of Luke. The Apostle Paul refers to him once as "the beloved physician" and he is, of course, responsible for the Christmas Story which once a year and for a few hours sweetens men's hearts. Legend, however, is ready to fill the gaps which authentic history cannot close. He studied in the schools of the East but does not seem to have been remarkable in his practice. Some old pictures show him sitting by the bed where parting life was laid giving ease to the body and solace to the mind of the traveller who was passing into the valley of the shadow. More often we see him at his easel for he is the patron of artists as well as of doctors. Some very ancient paintings are credited to him and, as a musician, he has been given the authorship of certain hymns.

There are some similarities between Dr. Luke and Dr. Brown. Both wrote simple and touching prose, both were interested in art, both found in the practice of healing a means for expressing their sympathy with the suffering. John Brown was born in a manse in the little town of Biggar in Lanarkshire. He very early decided upon medicine as a career and at the University was apprenticed (such was then the custom) to Professor Syme. Before graduating he served as an assistant to a doctor in Chatham. He was then 21. Many years later when Dickens visited Edinburgh he told the story of a young Scottish doctor, who during a severe epidemic stayed when others of his calling had fled and who so put himself at the disposal of the sick that after many days and nights of unrelenting toil he collapsed at the bedside of a dying patient, where he was found asleep from exhaustion. Dickens' auditors told him the name he had forgotten, and introduced to him the man who bore it.

He kept a careful record of his expenses for

money was scarce with him. Among these expenses we find—Quarterly collection at Ebenezer Chapel, 2/-; Subscription to the Temperance Society, 3/6; Leeches for a poor miserable child, 3/-. His daily routine at Chatham he gives in a letter to his father. "I get up at ½ past 7, go down stairs and put the Laboratory in order. At 8 we have prayers, which the Doctor reads, then breakfast with beefsteaks, etc. After that for an hour or so I post the books, transferring the medicines from the Day Book to the Ledger. By this time the gig is at the door and in we get driving to Brompton which is about 2 miles off and consists almost entirely of the Dockyard, the two Hospitals and the Barracks, with their natural accompaniments, Alehouses. Here there are a great number very ill of a low fever which some would call typhus. Then he comes home about ½ past 11 and writes a page or two of prescriptions and is off again leaving me to make up the medicines. This keeps me generally busy until ½ past 1 when we have dinner. By the time dinner is over there are 10 or a dozen patients waiting. These have all to have their mixture or draught or powders. As soon as they are away and the morning's medicines sent, the Doctor gives me another page and this is sufficient for me till 5 when coffee is announced. After that medicines have to be filled and the books arranged. I have generally a little time for myself for reading and writing out cases before supper. Supper is ready at 9 and is as Scotch as can be—porridge and bread and cheese." Shortly after this was written another assistant arrived so that Brown got more contact with patients and spent less time in dispensing. He stayed at Chatham for 2 years and then returned to Edinburgh where, after getting his degree, he started practice. The youth who had a year before permitted nothing short of exhaustion to keep him from attending to the sick, soon found himself busy. About the same time he met and fell in love with Catherine McKay, a maiden rich in beauty, in charm and in the graces which—in the old phraseology—"are necessary to render the marriage state truly happy." She was, however, poor in worldly goods—a drawback at a time when one might still read in notices of weddings "Mr. So and So to Miss So and So, an agreeable young lady with a handsome fortune." Six years later they were married and enjoyed that happiness which makes the intrusion of death so much to

be feared. Indeed when death did come to his wife the husband almost died with her.

Brown found relaxation in art and literature. The first he enjoyed but did not practice: the second he both practiced and enjoyed. His first literary excursions were in the realm of art. He published in 1846 "Notes on Art" and later he reviewed appreciatively Ruskin's "Modern Painters" which had been published anonymously and which had not been given the recognition it deserved. Three years later he published "Locke and Sydenham" in which he stressed the importance of the methods employed by "the English Hippocrates" and frowned upon the displacement of those methods by scientific apparatus. In the essay there is a great deal which we can read and follow with profit even, perhaps especially, today.

In 1858 appeared the first series of *Horae Subsecivae* which included "Locke and Sydenham" and that charming sketch entitled "Rab and his Friends." There is a little tale which every doctor should read and re-read. It is such a vivid portrayal of what surgery was and meant a century ago—what it was, indeed, in the memories of men still living for the change did not come quickly.

There is infinite pathos in the story of the little feeble, old woman, coming so bravely into the operating room with her husband and the faithful dog and young John Brown the only one she knew in the roomful of strangers. Dressed in her best clothes she laid herself upon the table and bared her breast, disfigured by cancer, to the knife which must cut through living, feeling, flesh with nothing to dull the pain or steep the senses in forgetfulness. All around her were students keen to see and to learn but as they watched the drawn face, the quivering lips, the appealing eyes their own eyes became moist as each saw in fancy his own mother stretched there and wondered how one so frail, so timid, could have such courage, could bear so much and say so little. After the operation the husband removed his heavy boots and, in stocking soles, carried his wife to her bed and nursed her. For four days things went well and then around the wound appeared the angry flush of infection — the harbinger of certain defeat. Fever set in and stirred the brain to delirium. Her aching breast roused memories long dormant. Her anguished husband saw her clutching a bundle of clothing to her breast, crooning over it and hushing it as she did 40 years before when her baby, long since dead, was fretful. Then, as the twilight deepened there was a last flush of light, a final awareness, before the night fell. But read the story for yourselves as Brown wrote it and think how kind has now become the surgeon's knife; now perhaps he may sometimes cut without cause but

he always cuts without pain and infection and death can not cheat him now as they once did. Moreover when we think how much Brown would be amazed by the practice of today let us think also how the practice of Brown would have amazed Pare, and then how much the practice of a century hence would, could we but see it, amaze us.

Three series of *Horae Subsecivae* were published to the great delight of readers on both sides of the Atlantic and today no library is complete without these volumes. They went through several editions during their author's life time and many since then. In 1864 Mrs. Brown died, leaving in the life of her husband that emptiness which every happy and fortunate husband must dread. He felt the loss so keenly that for a while he left his darkened house, no longer a home. Two years later he resumed practice but so many of his patients were dear to him as friends and he was so indifferent to money that he preferred to make friendly calls of his professional visits. With Sir George Harvey he arranged that, if he left his hat in the hall, the visit was professional; if he had it with him, the visit was a friendly one. But he so seldom left his hat in the hall that on nearly every occasion there was a tussle between the two for possession of the hat.

In 1874 the Senate of the University conferred upon Brown the degree of LL.D. He received it with mixed feelings. It was absurd, he said, so to honor him. It implied a degree of learning which he did not possess. He was unworthy of it. "Perhaps," said a friend, "in your case it may mean 'loved' not 'learned.'" He stopped his slow walk up and down the room and facing round said, "That is perfectly true, I am far more loved than I deserve (with a dawning smile) I ought to try and stop it." "You may find it difficult" was the rejoinder.

There was a return of illness 1876 and he felt himself no longer able to meet his professional responsibilities. He therefore sent out the following circular, "With heart-felt thanks to my patients and friends for all their great kindness and consideration towards me during the time I have been their doctor, I find myself now under the necessity of intimating that, owing to the state of my health, I am, with deep regret, obliged from this date to discontinue ordinary medical practice." His friends felt that now was the time for them to give him tangible evidence of the love and honor in which he was held. "No appeal was made, no single word printed, but it was whispered from friend to friend that a testimonial in money was being collected. In a short time a sum was secured that removed any share of anxiety as to the future."

In 1882 Brown published the last series of

Horae Subsecivae and it quickly went into a second edition. Then one evening he developed signs of illness. Pneumonia supervened and in a few days he succumbed to that disease which has been called "the old man's friend." A fitting end to one who had himself been the friend of so

many. At the end of his essay on Arthur Hallam he set these words, which, when his own end came were murmured by all who knew him "O! man, greatly beloved, go thou thy way to the end: for thou shalt rest and stand in thy lot at the end of the days."

Clinical Luncheon Reports

Winnipeg General Hospital

The Hazard of Tuberculosis in Hospital

Dr. J. D. Adamson

This subject was introduced by discussing changing Mantoux reactions in contacts following discovery of an open case in the General Hospital. This patient was a woman, admitted to the hospital for treatment of diabetes on May 4, 1946. On May 14th chest X-ray revealed active pulmonary tuberculosis and examination of sputum demonstrated the presence of acid fast organisms. During her first ten days in hospital she was cared for by 17 pupil nurses, 14 of whom showed no skin reaction to intradermal tuberculin. These girls were followed throughout June and July, during which time 5 of the negative reactors became positive.

Dr. Adamson pointed out the fact that this situation is indicative of the seeming unconcern regarding tuberculous infectivity. At times it almost appears that the profession and hospital staffs are more concerned over the presence of scabies or scarlet fever on the ward. Such unconcern is certainly not justified when one considers the fact that there are 6,000 new cases of tuberculosis in Canada yearly and 13,000 are under treatment in sanatoria, and 50,000 individuals suffer disability of some type due to tuberculosis.

Thirty years ago all student nurses who came into hospital as negative skin reactors became positive during training. During the past ten years it has been noted that one-third of these students have positive Mantoux at the beginning of training and they are not a source of worry because they will probably not break down with the ordinary exposure in hospital. One-third become positive during the period of training and one-third remain negative. In the past three years there has been some change in these figures, so that now one-quarter come in as positive reactors, one-quarter become positive during training and one-half remain negative. There is therefore a gradual increase in the number of negative reactors entering hospital training schools. With this there is an increased hazard for infection and an increased responsibility to prevent it.

Two suggestions were made regarding methods of coping with the situation: (1) Routine chest

plates on all hospital admissions which would not only protect the staff but also aid in the discovery of new cases. (2) The possibility of giving B.C.G. to pupil nurses.

Comment: Dr. Nicholson referred to the problem of infection among internes in the Department of Pathology. He further referred to a recommendation that sputum examinations be routine on all hospital admissions. Dr. Adamson felt that the sputum examination was more cumbersome, more difficult, and not so thorough, as all with active disease did not produce sputum. Dr. Pincock inquired as to whether it would not be satisfactory to X-ray only those admissions showing positive Mantoux, and Dr. Adamson replied that as 50% of admissions are positive it would be simpler to X-ray all admissions. He pointed out in closing that all recent cases of active tuberculosis in student nurses have developed in those with negative Mantoux at the beginning of training.

An Account of Empire Post-War Scientific Research Conferences in England

Prof. A. T. Cameron

Professor A. T. Cameron gave an account of the Proceedings of the Royal Society Empire Scientific Conference and the British Commonwealth Scientific Official Conference, held consecutively in London, Cambridge and Oxford, in June and July, 1946, and of general conditions in England at the present time. The delegates to these conferences numbered over one hundred, and represented the United Kingdom, all the Dominions, India and the Colonies, representing also the pure sciences, and agriculture, engineering and medicine. Those from abroad were warmly welcomed and entertained.

The main purpose of the conferences was to devise means for aiding research co-operation through the Commonwealth. The meetings showed that the problems of Great Britain and to a very considerable degree those of the Dominions have much in common, so that most of the discussions were carried out in an atmosphere of mutual understanding.

Numerous recommendations were agreed upon, to be passed to the various Governments. It was considered important to maintain the scientific

liaison offices established during the war at Washington and London, and to extend the liaison principle as between the Dominions and also to countries outside the Commonwealth. Interchange of scientists through Fellowships and by sending senior scientists for short periods from one to another Dominion was also considered very important. Some of the many subjects dealt with were the best means of utilization of the results of research, building research, fuel research, the processing, storage and transport of food, cosmic rays, radio, mineral and agricultural surveys of the Empire, fisheries research, information services, etc.

Concerning Medicine in particular, the etiology and control of infectious and transmissible diseases gave rise to an interesting and important discussion. Particular attention was drawn to the grave danger of spread of such diseases as malaria, yellow fever, schistosomiasis, trypanosomiasis, plague and cholera. More ecologists and entomologists, both medical and non-medical, are needed to increase our knowledge concerning such diseases, and the Universities of the Empire should have this stressed to them. UNO should establish an international organization to control the spread of disease. Existing regulations at air-ports and other transit centres were held to be unsatisfactory, through shortage of trained sanitary in-

spectors and other medical personnel, especially in India and the Colonies.

Recommendations were passed for the establishment of a central Commonwealth Organization for maintenance of collections of type-cultures of micro-organisms, and it was considered that UNO should be asked to set up a similar international body.

It was agreed that there is need for study of physiological and psychological factors affecting human life under tropical conditions and in Industry. Also that there is need for bettering the nutritional standards within the Empire, especially as regards vitamins and mineral supplements and as regards the indigenous peoples of the Dominions and the Colonies.

It was recommended that Government-sponsored bodies for stimulation, support and organization of medical research be set up in each Dominion. The type and functions of such a body, as recommended, were actually fairly similar to the Division of Medical Research of the National Research Council recently created in Canada.

The Official Conference finally established a standing committee to arrange for future conferences, and to transmit its recommendations and aid in implementing them.

Something New

Articular Pain in Scarlet Fever occurs most often in females over 15, and because of this association, Snorrason, of Copenhagen, believes that the sex hormones play a part in its presence. It is not, as is often asserted, an allergic arthralgia due to the activation of a latent rheumatic infection. Snorrason reports that out of 2,110 scarlet fever patients 9% had articular symptoms. The wrist joint was most often involved but the other joints were not always spared. Females were affected three times as often as males.

Acta med. Scand. 124:67, 1946

Plasma Viscosity is of Greater Significance Than Erythrocyte Sedimentation as a prognostic guide. Either may be high when the other is normal. A high viscosity is of great and grave significance particularly in tuberculous and psychotic patients. The viscometric zone at the time of aspiration of a pleural effusion will indicate whether or not it is likely to return. Increase in viscosity proceeds *pari passu* with physical deterioration and decrease with recovery. Reversal occurs also in fatal cases when after reaching a maximum value there is a swift fall in acute cases and a slower one in chronic conditions.

Harkness, Houston and Whittington.

B.M.J. 4442:268, 1946.

Something Old

Thoughts From Doctor John Brown (1810 - 1882)

Every man who is in earnest, who looks at nature and his own proper work, with his own eyes, goes on through life demolishing as well as building up what he has been taught, and what he teaches himself. He must make a body of medicine for himself, slowly, steadily, and with a single eye to the truth. He must not on every emergency rush off to his cyclopedias or worse still to his manuals. For in physic, as in other things, men are apt to like ready-made knowledge; which is generally as bad as ready-made shoes, or a second-hand coat.

Our ordinary senses, our judgement and our law of duty must make up the prime means of mastering and prosecuting with honour and success, the medical, or indeed any other profession founded upon the common wants of mankind. Microscopes, pleximeters, the nice tests of a delicate chemistry, and all the transcendental apparatus of modern refinement, must always be more for the few than for the many. Therefore it is that I would insist more and more on immediate, exact, intense observation and individual judgement, as the mainstays of practical medicine. From the strenuous, life-long, truth-loving exercise of these, let no amount of science, however exquisite, decoy the student; and let him who has them, not greatly long after, as he will not greatly miss, these higher graces of the profession. What will make a valuable physician or surgeon now . . . must be in the main the same that which made Hippocrates and Sydenham, Baillie and Gregory, what we glory and rejoice to think they were.

* * *

I give my vote for going back to the old manly intellectual and literary culture of the days of Sydenham and Arbuthnot, Heberden and Gregory; when a physician fed, enlarged, and quickened his entire nature; when he lived in the world of letters as a freeholder, and revered the ancients, while at the same time he pushed on among his fellows, and lived in the present, believing that his profession and his patients need not suffer, though his horae subsecivae were devoted occasionally to miscellaneous thinking and reading.

* * *

I believe that the study in himself and others of the human understanding, its modes and laws as objective realities, and his gaining that power over mental action in himself and others, which alone comes from knowledge at first hand, is one which every physician should not only

begin in youth, but continue all his life long, and which in fact all men of sense and original thought do make, though it may lie in their minds, as it were, unformed and without a tongue.

* * *

If all that is good in the Water-Cure, and in Rubbing, and in Homeopathy, were winnowed from the false, the useless, and the worse, what an important and permanent addition would be made to our operative knowledge!—to our power as healers! and here it is, where I cannot help thinking that we have, as a profession, gone astray in our indiscriminate abuse of all these new practices and nostrums; they indicate, however, coarsely and stupidly, some want in us. There is in them all something good, and if we could draw to us, instead of driving away from us, those men whom we call, and in the main truly call, quacks—if we could absorb them with a difference, rejecting the ridiculous and mischievous much, and adopting and sanctioning the valuable little, we and the public would be all the better off. Why should not “the Faculty” have under their control and advice, and at their command, rubbers and milk men and grape men and cudgelling men as they have their cuppers and the like, instead of giving them the advantage of crving out “persecution,” and quoting the martyrs of science from Galileo downwards.

* * *

Lord Jeffrey said to a young friend of great genius, but addicted to long and odd words, and to coining a word now and then “My friend, when you have a common thing to say, say it in a common way, and when you have an uncommon thing, it will find its own way of saying itself.” Let no one despise style. If thought is the gold, style is the stamp that makes it current, and says under which king it was issued. There is much in what Buffon says—Style is the man himself. Try to put Horace or Tacitus, Milton, Addison, or Goldsmith, Charles Lamb, or Thackeray into other words and you will mar and likely kill the thought—they cease to be themselves.

But how an I to get a good style? Not by imitating or mimicking any one. Not by trying to think or to write **like** any one but to think and to write **with** him. It is with style as with manners and good-breeding. Keep good company, and do your best, and you will write and speak and act like a gentleman, because you think and feel and live with gentlemen. If you would write like the ancient masters, read them and relish them—be their son, not their ape. Our medical writers nowadays, with a few signal exceptions, write ill. They are slovenly, diffuse, often obscure, and curiously involved. The reasons are: First, the

enormous amount of merely professional knowledge a man is expected to master before he writes on any subject, and the absorbing nature of the new methods; secondly, and as a consequence, the ignorance of general literature, and the much less association by men of medicine with men of letters, now than in olden times. Arbuthnot was not the worse physician, and all the better writer, for his being the companion of those famous wits whose good genius and doctor he was. Currie, Aikin, Gregory, Heberden, Cullen, Ferriar, Gooch, are all the more powerful, and all the more permanent, as medical authorities, from their having learned by practice and by example, to write

forcibly clearly, compactly, and with dignity and grace.

* * *

Let me tell my young doctor friends, that a cheerful face, and step, and neckcloth, and button-hole and an occasional hearty and kindly joke, a power of executing and setting agoing a good laugh, are stock in our trade not to be despised. The merry heart does good like a medicine. Your pompous man, and your selfish man, don't laugh much or care for laughter; it discomposes the fixed grandeur of the one, and has little room in the heart of the other, who is literally self contained.

"Horae Subsecivae."

Book Reviews

The Treatment of Bronchial Asthma, by Vincent J. Derbes and Hugo Tristram Englehardt, with chapters by eminent contributors. J. B. Lippincott Company, Montreal.

Bronchial Asthma

"There can be little doubt in the mind of the average medical practitioner," says Musser, "that bronchial asthma is one of the most discouraging and disheartening disorders to treat. It can likewise be said most dogmatically that certainly the victims of asthma would agree with their physicians." The incidence of asthma varies in different localities but it would appear that between 3.5 and 7 persons in every 1,000 suffer from the condition. That means that in Manitoba there are not fewer than 2,625, and perhaps as many as 5,250 asthmatic persons, an average of about 8 patients per doctor but probably half as many again per general practitioner. Here then is a common and distressing ailment which most of us are called upon to treat, can we assure ourselves that we are as familiar as it is possible for us to be with all the aspects of the condition?

There are many things that we should know. We should know the effects produced upon the asthmatic by endocrine disturbances, by pregnancy, diabetes, tuberculosis, etc. We should have a clear understanding of the normal anatomy and physiology of respiration and of the changes in the asthmatic. There is also the pathology of the condition and the immunology. All of these matters must be understood before one can properly approach the question of treatment. Many but not all cases of asthma are allergic in origin. House-dust, pollen, fungus spores, bacteria, and parasites are among the causes. Not a few cases are psychogenic. Treatment may be allergic, non-allergic or surgical. There are complications which must be remembered and there is cardiac asthma which also must be considered.

These are some of the matters one must have clear in his mind when he undertakes the treat-

ment of an asthmatic. Perhaps many doctors are not quite clear on some of them but there is no reason why all the known details should not be familiar to them for they are all to be found in *The Treatment of Bronchial Asthma*, by Derbes and Englehardt. This book is in two parts. The first is entitled "Orientation" and begins with an interesting historical outline by Ralph Major. Then there are chapters on definition and classification, on statistics (by Dublin), on predisposing and contributing factors, on the anatomy and physiology of the respiratory tract, on the pathology of asthma, on immunology, and on the influence of climate and weather.

Part Two is entitled "Clinical Aspects." It opens with a description of the disease. Then follow chapters on the methods of testing, on the house-dust factor, on the pollen and fungus-spore factors, on the role of food in the production of asthma, on bacteria and other precipitating factors, on the effect of parasitic agents, on the rhinological aspects of the condition, on psychogenic factors, on differential diagnosis. Treatment is specially considered under three heads each with its separate chapter—allergic, non-allergic, and surgical. Complications are then considered. The last chapter is on cardiac asthma and the author is Paul White. The index covers 19 pages. There are 52 tables and 61 figures. The 19 contributors are responsible for 450 pages. This subject is discussed completely. The presentation is concise and clear. It is based on sound authority and deserves a place in every doctor's library.

Diseases of the Breast, Diagnosis, Pathology, Treatment, by Chas. F. Geschickler, M.A., M.D., Second Edition. 26 pages, 593 illustrations. J. B. Lippincott Company, Montreal. \$15.00.

Diseases of the Breast

The reputation of the author of this book is in itself a sufficient guarantee of its excellence. The first edition was published in 1943 and estab-

lished itself as the outstanding monograph on the diseases of the breast. The present edition fully lives up to the standard set by the previous one.

The first section deals with anatomical changes in the breast throughout life and with the endocrine physiology of the breast, including some of its aberrations. Dr. Geschickler's extensive background in the experimental study of endocrine physiology of the breast makes this section very interesting and impresses one with its authenticity.

The second section considers the breast in pregnancy and lactation and should crystallize for the student an understanding of many of the problems of this period. He deals fully with galactorrhea, non-puerperal mammary secretion; inspissated mammary secretion; plasma-cell mastitis and acute and chronic lactation mastitis. The latter part of this section is devoted to the influence of pregnancy and lactation on mammary dysplasia and cancer. This section of the book is very thoughtfully written and agrees fairly closely with the statistical findings in the material of the American College of Surgeons.

The third section deals with mammary dysplasia and is here Geschickler has made his greatest contribution. The clinical classification has an excellent microscopic basis and is capable of application in actual practice. It is far superior to, and much more simple than, any other classification known to the reviewer. This section should be of great value to students who in general have very confused ideas on the problem of mammary dysplasia. In this section the author reviews the endocrine aspects of mammary dysplasia and its relationship to cancer. His experimental studies along these lines are well known.

This section is concluded by an excellent statistical survey by L. I. Dublin, Statistician of the Metropolitan Life Insurance Company.

Space is given to Benign Mammary Tumors and to the controversial problem of bleeding from the nipple. His presentation of this subject leaves nothing to be desired. It makes excellent reading and throws a great deal of light on the clinical and pathological aspects of this subject.

The section on malignant tumors is the best the reviewer has seen. The classification is excellent and is capable of clinical application. The method outlined of gauging prognosis is very sound and is based on large series of statistics. The section on treatment is modern and answers all questions which come to the reader's mind.

The last section deals with Geschickler's own researches on the experimental production of benign and malignant mammary tumors and the application of his experimental findings to the human breasts.

This book originates in Johns Hopkins Medical School and summarizes an analysis of the present day clinical cases seen on the surgical wards, plus the case histories, specimens, and follow-up studies from the surgical pathological laboratory of that institution. Many of the cases have been followed for years. Dr. Geschickler's own work on breast tumors is too well known to require praise, which is all the reviewer has to offer for this remarkable monograph.

The portrayal of microscopic sections is excellent and the diagrams used in statistical surveys are original and enlightening.

This book is indispensable to the general practitioner and surgeon alike.

R. O. B.





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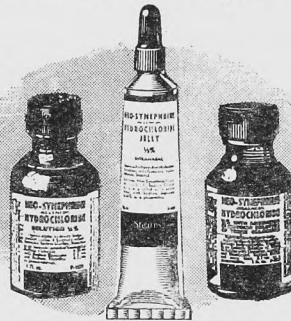
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Editorial

J. C. Hossack, M.D., C.M. (Man.), Editor

A Toast

The Editorial Page is not the usual place for toasts but as I am an unorthodox editor I shall introduce one here. Incidentally did you ever wonder why we use the word "toast" when we drink to those we honor? The reason is this. It is, of course, an ancient custom to drink one's "health" in punch or some other alcoholic beverage and it was usual to put pieces of toasted bread into the bowl though I am not sure of the significance of these. Now, in the ancient City of Bath it was once the fashion for ladies, attired in elegant dresses made for the purpose, to bathe publicly in the baths which gave the City its name. "It happened on a public day, a celebrated beauty was in the Cross-bath, and one of the crowd of her admirers took a glass of the water in which the fair one stood and drank her health to the company. There was in the place a gay fellow, half-fuddled, who offered to jump in and swore though he liked not the liquor, he would have the toast." Such then, is the origin of the use of the word "toast" in this connection.

And now to our own toast. It is to the officially retired, but not personally retiring, president—Dr. McNulty. I have a great admiration for Dr. McNulty fostered a little by his close resemblance to Winston Churchill but a great deal more by my experience of him. I first met Pat in College where he, in his second year, and I, in my first, were assigned to the same body which incidentally had served for the mundane uses of a gentleman called John Smith, a victim of pernicious anemia.

In those days Pat looked particularly youthful. He therefore sought to create the impression of age and tried to do so by fostering a downy subnasal excrescence which could be detected only on close observation and which the passage of years has rendered somewhat more obvious but no more extensive. To add to his deception he was wont on occasion to squirt a black fluid from his mouth when this would attract maximum attention without giving offence. It was naturally assumed that this juice was the result of the sialogogic action of tobacco but actually Pat had not got beyond the stage of—licorice! My contacts with him during college days were few for he enjoyed the rarified atmosphere of the year ahead.

In his third year Pat embarked on practice as doctor to a construction gang. He had little experience in, nor any great knowledge of, his craft nor were such to be expected. But he had then, as he has now, an abundance of "horse sense" due, doubtless, to his love for, and contacts with,

that animal. On one occasion he had to bring to the City a man with a broken leg. His knowledge of morphine consisted of two facts, first that it gave relief from pain, second, that a tablet was obviously a safe dose. To that he added the original idea that if the pain continued, as evidenced by groaning, the dose must be repeated. So he gave a tablet hypodermically. After waiting a little and finding that the groans persisted he gave another dose. The journey to Winnipeg was punctuated by jabs of his needle one of which was given every time the patient made a sound. By the time the hospital was reached the surgeon's first procedure was to neutralise an excess of morphine.

For many years Dr. McNulty contented himself with building up his present large practice. He avoided the business—one might say the politics—of medicine. But during these years, and from the vantage point of an outsider, he watched and thought. When State Medicine became an issue he saw the importance of a united front in medicine. His friends who up to then had been unable to persuade him to take any active part in the business of the profession now found him receptive. He became Vice-President of the Winnipeg Medical Society and then its President. His common sense, his industry and his interest were employed to such general advantage that the Vice-Presidency of the Association followed as a matter of course. As Vice-President and then as President of the Association he gave most liberally of his time and his talents, his unmistakable honesty of purpose and singleness of thought impressing alike those who agreed and those who disagreed with him, whether they were his own colleagues or laymen. Two general principals guided him in his years of office. First, his firm belief that there should be no autocrats in medicine; that office means responsibility and service, not an opportunity to exert authority; that, in short, a President should be no more than princeps inter pares. Second has been his championing of the "common man" in medicine. To him the body of medicine is made up of general practitioners and it is their interest which must come first. He deplores the fact that men in general practice have little to do with the management of their affairs and in all the positions he has occupied he has felt upon him the responsibility of thinking about, and speaking for, and working in the interests of, the general practitioners.

In his debates and actions there has never been a doubt in the minds of any, even of these who most disagree with him, of his absolute sin-

cerity, nor could anyone ever feel that he thought otherwise than as he spoke nor could anyone ever believe that he was capable of prejudice or discrimination. Such a straightforward, honest, and outspoken attitude makes for effectiveness of action and gives satisfaction to those who have placed their interests in the hands of such a man. Let us hope that the relinquishment of office will not deprive us of the contribution of such a valuable leader and servant.

Pat is by origin an Irishman, a member of that strange race where paradox is the rule. Thus he told me one day that he would cheerfully cut the throat of every Englishman! Yet at the same time his daughter was enduring the blitz and his son was at sea while he was working tooth and nail for the cause of Britain and doing a hundred unpublished kindnesses to strangers whom he professed to hate but really admired. But Pat McNulty cannot hate. Only little hearts have room for hatred, not big ones like his. I believe him, however, in the matter of throat-cutting. I'm sure he would cut the throat of every Englishman—who had a goitre or bad tonsils! And so, ladies and gentlemen, health and long life to Pat McNulty long may his lum reek and may his shadow never grow less.

Meet Dr. MacFarland

Some of you have already had the pleasure of meeting Dr. MacFarland—our new secretary—and soon all of you will know him. He is a lively person, in this respect very different from the usual subjects of my little biographies. His names—Maxwell Theodore—were inflicted on him shortly after September 25th, 1902, which was his birthday. After having learned all that the elementary schools had to impart he entered the Ottawa Collegiate Institute and later Queen's University which conferred upon him first the degree of B.A. and then, in 1930, the degrees of M.D., C.M. After a year of internship in the Ottawa Civic Hospital he found the West in his eyes and kept on going until he practically bumped into the Rocky Mountains at a place called Bonnyville, Alberta. There, for the next three years, he conducted a general practice. In 1935 he took a post

graduate course at the Lahey Clinic in Boston and later in the year enrolled as a freshman in the School of Matrimony, a course which he says he has found interesting, instructive, pleasant and profitable. He has a 10-year-old daughter.

He returned to Bonnyville and practiced there until 1940 when he joined the R.C.M.C. For a while he was stationed in Halifax but most of the next five years were spent in Great Britain chiefly in administrative work. For the past month he has been under the tutelage of Dr. T. C. Routley in Toronto. He is a tall, fine looking chap, a credit to his Scotch ancestry which, through no fault of his, acquired an admixture of Irish. Strange to say he considers this an improvement! Anyway I am sure that we shall all like him and I am sure also that he will do a good job for our Association. Personally I shall profit by having one or two pages fewer each month to worry about—the pages in which Dr. MacFarland will tell you about Association doings.

Resolution Passed by Executive of Manitoba Medical Association

Premarital Blood Tests

RESOLVED that the Executive of the Manitoba Medical Association recommends to its membership that the fee for premarital Wassermann tests and certificates shall be \$5.00 for each test and certificate.

Election Results

President	Dr. J. R. Martin
1st Vice-President	Dr. R. W. Richardson
2nd Vice-President	Dr. H. S. Evans
Honorary Secretary	Dr. D. L. Scott
Honorary Treasurer	Dr. H. M. Edmison
Rural Member at Large	Dr. W. H. Patterson
Winnipeg Member at Large	Dr. R. Hollenberg

Manitoba Medical Service, Board of Trustees

Three-Year Term as from March 1st, 1947:

Dr. P. H. McNulty	Dr. C. K. Bleeks
Dr. Sol. Kobrinsky	Dr. J. M. McEachern
Dr. R. Danzinger	



Personal Notes and Social News

Dr. J. R. Martin, Neepawa, Man., President of the Manitoba Medical Association, is engaged to be married to Jean Glover, daughter of Mrs. J. Allan, of Winnipeg. The wedding to take place in Crescent Fort-Rouge United Church on November 16th.

Dr. and Mrs. Barrie Duncan, of Dawson City, Yukon Territory, are happy to announce the birth of a son, on October 8th, 1946.

Dr. Jessie Findlay was presented with the Kaiser-i-Hind gold medal for distinguished public service in India as Professor of Surgery and Principal of the Women's Medical College at Vellore, Madras presidency, India.

Dr. D. M. McPhail and his wife, Dr. Ethel M. McPhail, have moved to Pilot Mound, Man., where they have entered practice.

Dr. and Mrs. C. F. Benoit, of 114 Claremont Ave., take pleasure in announcing the birth of a daughter, Edith Vivian, at St. Boniface hospital, on Sunday, October 13th, 1946.

Dr. R. M. Boughton, formerly of Winnipeg, has taken up practice at Pincher Creek, Alta.

Dr. J. N. Andrew, of Minnedosa, Man., was a guest of honor at the Minnedosa Rotary club's luncheon held Monday, October 14th, on the occasion of his 78th birthday.

Dr. Dougald McIntyre has just completed thirty years service as Superintendent of Municipal hospitals.

Dr. B. Steindel has left Winnipeg to practice at Whitemouth, Man.

Medical Happenings for November

Tuesday, 5—

Luncheon, Misericordia Hospital, 12:30 p.m.

Wednesday, 6—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 7—

Luncheon, Winnipeg General Hospital, 12:30 p.m.

Friday, 8—

Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Wednesday, 13—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 14—

Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 14—

Luncheon, St. Boniface Hospital, 12:30 p.m.

Friday, 15—

Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Friday, 15—

Meeting, Winnipeg Medical Society, 8:15 p.m., Medical College.

Tuesday, 19—

Luncheon, Grace Hospital, 12:30 p.m.

Tuesday, 19—

Luncheon, St. Joseph's Hospital, 12:30 p.m.

Wednesday, 20—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 21—

Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 21—

Luncheon, Winnipeg General Hospital, 12:30 p.m.

Friday, 22—

Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Friday, 22—

Luncheon, Victoria Hospital, 12:30 p.m.

Wednesday, 27—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 28—

Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 28—

Luncheon, St. Boniface Hospital, 12:30 p.m.

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College of Physicians and Surgeons of Manitoba

Registration Committee

Winnipeg, Man., Sept. 3, 1946

A meeting of the Registration Committee was held Tuesday, September 3rd, 1946.

Present: Dr. T. D. Wheeler and Dr. W. G. Campbell.

Consideration of the Application for Registration of Dr. Wallace Keith Hames

Dr. Hames received his B.A. degree from the University of Saskatchewan in 1943. He graduated in medicine from the University of Toronto in 1945, and received his licentiate with the Medical Council of Canada the same year. He included a Basic Science Certificate with his other credentials.

Motion:

Moved by Dr. T. D. Wheeler, Seconded by Dr. W. G. Campbell: "THAT Dr. Wallace Keith Hames' application for registration be accepted." Carried.

Registration Committee

Winnipeg, Man., Sept. 13, 1946

A meeting of the Registration Committee was held Friday, September 13th, 1946.

Present: Dr. T. D. Wheeler, and Dr. W. G. Campbell.

Consideration of the Application for Registration of Dr. Joseph Harris Rochester Genin Preston

Dr. Preston received his M.D., C.M. degrees from Queen's University in 1935, and registered with the Medical Council of Canada the same year. He received a Diploma in Public Health from the University of Toronto in 1946. A Basic Science Certificate accompanied his application. Dr. Preston is in charge of the Local Health Unit at Neepawa, Manitoba.

Motion:

Moved by Dr. T. D. Wheeler, Seconded by Dr. W. G. Campbell: "THAT Dr. Joseph Harris Rochester Genin Preston's application for registration be accepted." Carried.

Registration Committee

Winnipeg, Man., Sept. 20, 1946

A meeting of the Registration Committee was held Friday, September 20th, 1946.

Present: Dr. T. D. Wheeler, Dr. Wm. Turnbull and Dr. W. G. Campbell.

1. Consideration of the Application for Registration of Dr. Francis Richard Chown.

Dr. Chown received his M.D. degree from the University of Toronto in 1941, and registered with the Medical Council of Canada the same year. A Basic Science Certificate accompanied his application. He is in charge of the Northern Local Health Unit at Flin Flon, Manitoba.

Motion:

Moved by Dr. T. D. Wheeler, Seconded by Dr. Wm. Turnbull: "THAT Dr. Francis Richard Chown's application for registration be accepted." Carried.

2. Consideration of the Application for Registration of Dr. Donald George Henry Tutton.

Dr. Tutton received a B.Sc. degree from the University of Wales in 1940, and M.B., B.Ch. degrees from the same University in 1943. He registered with the General Medical Council of Great Britain in April, 1943. Dr. Tutton also included a Basic Science Certificate with his other credentials.

Motion:

Moved by Dr. T. D. Wheeler, Seconded by Dr. Wm. Turnbull: "THAT Dr. Donald George Henry Tutton's application for registration be accepted." Carried.

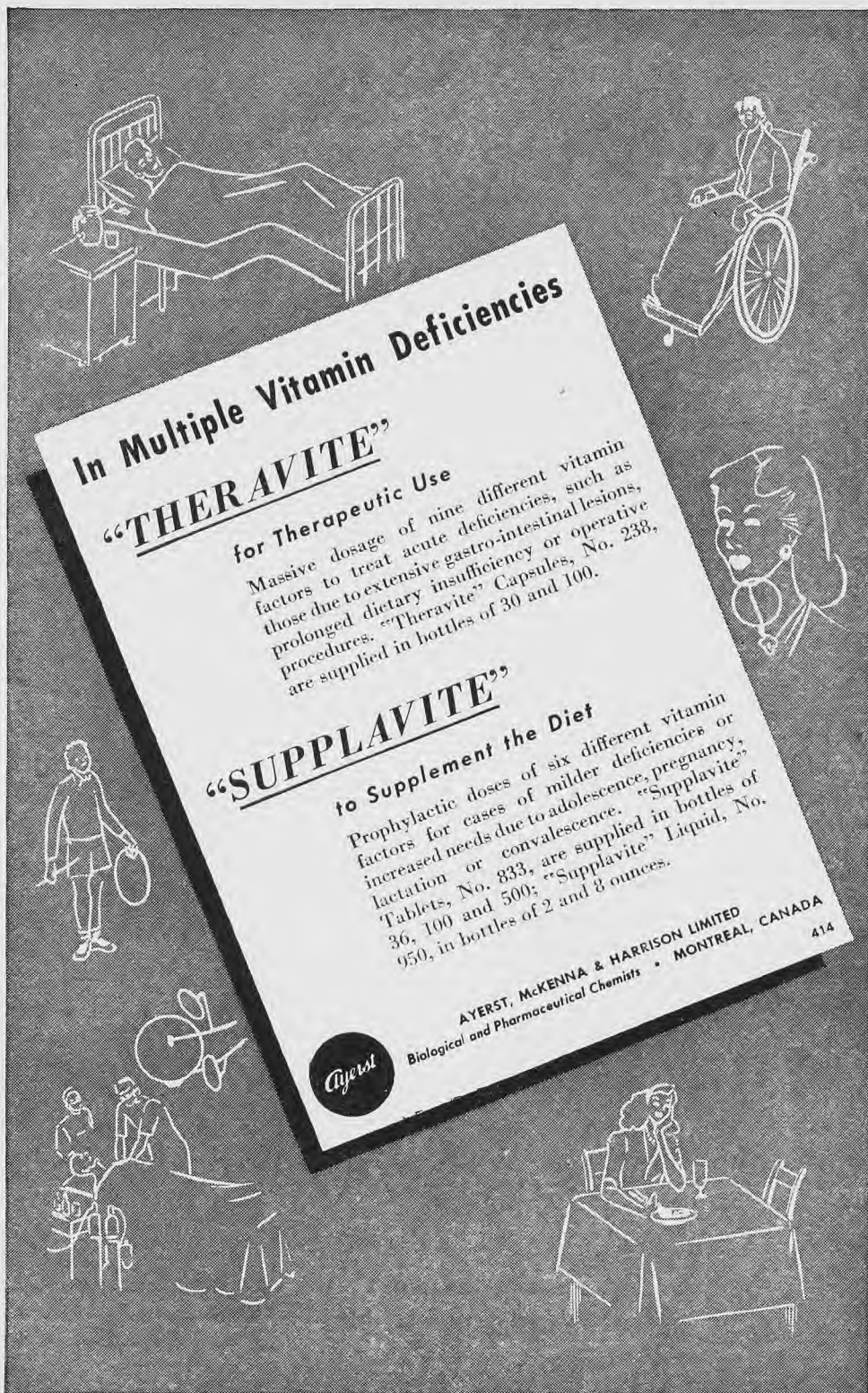
3. Consideration of the Application for Registration of Dr. Kurt Anstreicher.

An application for registration was received from Dr. Anstreicher. He is a refugee doctor employed on the staff of the Mental Hospital at Brandon, Manitoba. He has complied with the requirements as submitted by the Registration Committee and passed by the Council. That is, he has completed the fourth year of the medical course at the University of Manitoba and passed the examination. He was granted an enabling certificate, and passed the examinations of the Medical Council of Canada in July, 1946. He also has received a Basic Science Certificate from the University of Manitoba.

Motion:

Moved by Dr. T. D. Wheeler, Seconded by Dr. Wm. Turnbull: "THAT Dr. Kurt Anstreicher's application for registration be accepted." Carried.





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414

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1946		1945		TOTALS	
	Aug. 11 to Sept. 7	July 14 to Aug. 10	Aug. 12 to Sept. 8	July 15 to Aug. 11	Jan. 1, to Sept. 7, '46	Jan. 1 to Sept. 8, '45
Anterior Poliomyelitis	16	7	2	2	25	14
Chickenpox	26	55	18	80	881	1640
Diphtheria	9	9	18	18	129	201
Diphtheria Carriers	5	2	5	---	18	29
Dysentery—Amoebic	---	---	---	---	1	---
Dysentery—Bacillary	---	---	---	2	1	9
Erysipelas	3	4	3	1	53	37
Encephalitis	---	---	2	1	1	7
Influenza	5	6	7	5	173	148
Measles	68	243	4	20	1648	476
Measles—German	---	5	2	---	21	35
Meningococcal Meningitis	2	2	---	---	15	10
Mumps	65	70	38	53	1888	1228
Ophthalmia Neonatorum	---	---	---	---	---	---
Pneumonia—Lobar	3	8	6	3	121	102
Puerperal Fever	---	1	---	---	2	1
Scarlet Fever	17	18	33	33	432	517
Septic Sore Throat	3	4	2	1	30	19
Smallpox	---	---	---	---	---	---
Tetanus	---	---	1	2	1	3
Trachoma	---	1	---	4	2	4
Tuberculosis	85	82	49	56	684	459
Typhoid Fever	2	3	4	3	16	35
Typhoid Paratyphoid	---	---	1	---	2	6
Typhoid Carriers	---	---	1	---	2	3
Undulant Fever	1	2	---	2	16	11
Whooping Cough	12	31	19	6	231	243
Gonorrhoea	201	180	224	206	1695	1433
Syphilis	50	40	48	43	468	408
Diarrhoea and Enteritis, under 1 yr.	8	22	2	4	154	10

DEATHS FROM COMMUNICABLE DISEASES

For the Month of August, 1946

Urban—Cancer, 30; Diphtheria, 2; Lethargic Encephalitis, 1; Pneumonia, Lobar, 3; Pneumonia (other forms), 4; Syphilis, 1; Tuberculosis, 10; Diarrhoea and Enteritis (under 1 year), 3; Diseases of Skin, 1. Other deaths under 1 year, 12. Other deaths over 1 year, 127. Stillbirths, 13.

Rural—Cancer, 24; Influenza, 1; Pneumonia, Lobar, 2; Pneumonia (other forms), 6; Tuberculosis, 15; Tetanus, 1; Diarrhoea and Enteritis (under 1 year), 7; Dysentery, 1. Other deaths under 1 year, 16. Other deaths over 1 year, 120. Stillbirths, 11.

Indians—Influenza, 3; Pneumonia (other forms), 3; Tuberculosis, 10; Diarrhoea and Enteritis (under 1 year), 2. Other deaths under 1 year, 5. Other deaths over 1 year, 7. Stillbirths, nil.

North Dakota has stopped sending weekly reports so we can no longer supply their statistics for comparison.

Anterior Poliomyelitis—We have been fortunate this year—Only 45 cases as of October 15th. Twelve of these in the City of Winnipeg and 33 cases in the balance of the province.

Diphtheria—There has been a small epidemic at Neepawa and the outstanding point is that all cases reported to date are over 17 years of age. This proves the point that if we are going to stamp out diphtheria we must not only toxoid the youngsters but give reinforcing doses to adults whenever we can.

Gonorrhoea and Syphilis both show some increase over last year to date. We must not relax our efforts to control venereal disease.

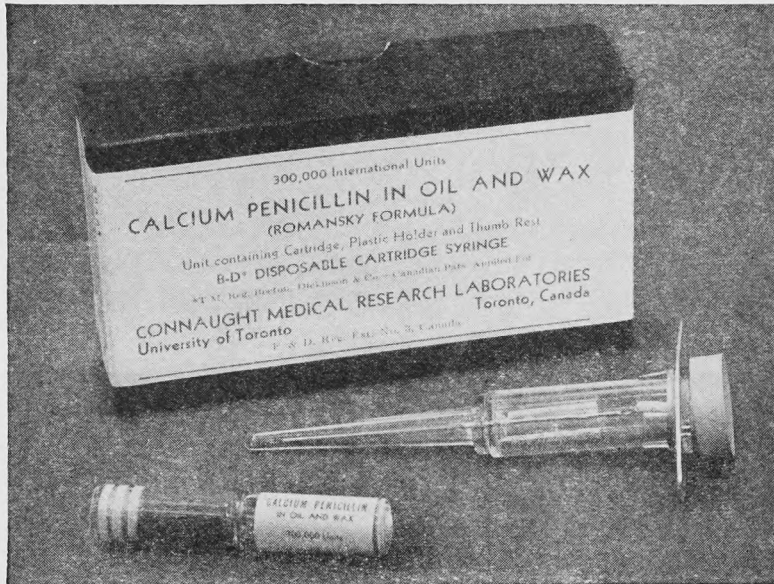
DISEASES

(White Cases Only)

*Approximate population.

	*736,000 Manitoba	*3,825,000 Ontario	*906,000 Saskatchewan	*2,972,000 Minnesota	*641,000 North Dakota
Anterior Poliomyelitis	16	126	18	1,036	---
Meningococcal Meningitis	2	8	1	1	---
Chickenpox	26	326	43	---	---
Diarrhoea and Enteritis	8	---	---	---	---
Diphtheria	9	19	3	16	---
Diphtheria Carriers	5	---	---	---	---
Dysentery Amoebic	---	---	---	10	---
Erysipelas	3	1	1	---	---
Influenza	5	10	---	---	---
Jaundice, Infectious	---	2	---	---	---
Encephalitis—Epidemic	---	1	1	---	---
Measles	68	214	197	22	---
German Measles	---	12	2	---	---
Mumps	65	332	190	---	---
Pneumonia Lobar	3	---	2	---	---
Scarlet Fever	17	89	9	42	---
Septic Sore Throat	3	5	---	---	---
Tetanus	---	---	1	---	---
Tuberculosis	85	161	68	11	---
Tularemia	---	---	---	1	---
Typhoid Fever	2	5	6	---	---
Typh. Para-Typhoid	---	3	---	---	---
Undulant Fever	1	5	---	11	---
Whooping Cough	12	185	3	37	---
Gonorrhoea	201	573	---	---	---
Syphilis	50	288	---	---	---

PENICILLIN INJECTIONS REDUCED TO ONE OR TWO IN TWENTY-FOUR HOURS



Since the first publication by Romansky of the satisfactory blood levels of penicillin obtained and maintained for a period of eighteen hours following the intramuscular injection of 300,000 units of calcium penicillin in beeswax and peanut oil, both laboratory investigations and collaborative clinical studies in the treatment of gonorrhea and pneumonia have been made by the Connaught Medical Research Laboratories. It has been widely confirmed that penicillin prepared according to the Romansky formula maintains the blood levels which are required in the treatment of gonorrhea and certain other conditions, and permits of one injection every twelve to twenty-four hours.

The Connaught Medical Research Laboratories have prepared a suitable product which can be readily administered with the use of a disposable plastic syringe provided in each package. This syringe, with sterile, built-in needle, is ready for immediate use with a special cartridge containing 300,000 units of calcium penicillin in 1 cc. of beeswax and peanut oil.

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431 Portage Avenue, Winnipeg

Manitoba Medical Service

The Referee Board, during its last session, instructed me to prepare and send the following letter to some members whose bills had been submitted for consideration. If necessary it will be sent to others, as not all members read this page.

"The Referee Board of the Manitoba Medical Service, after several meetings, and the study of many accounts, has arrived at certain conclusions.

The Board of Trustees of the Manitoba Medical Service were given instructions by the Executive Committee of the Manitoba Medical Association to make Plan "B" solvent. It is not and cannot be under present circumstances. At one time it was supposed that the service could provide all the services that the patient thought he should have (and many members were, for years, patients at the O.P.D. and in the public wards) and that the doctor could use all the facilities of modern medicine to make a diagnosis.

The result has been that the amounts charged for diagnosis by a minority of the profession are far out of line with that charged by others, and therefore places the latter at an economic disadvantage. The funds are not sufficient to supply any other service than what the average citizen could reasonably be expected to provide for himself.

Enrolment at a higher rate is now being put into effect. It will also be applied to those who are already subscribers; but you are not to expect a rapid rise in income, for the simple reason that a contract cannot be broken; alteration in the rates can only be made at the end of a contract year, and contracts have been made twice a month over the past year, so that it will be a full year before the complete result of the change can be demonstrated.

Contracts are occasionally cancelled by the Manitoba Medical Service where it is considered that demands for minor services are excessive enough to constitute an abuse. A contract would not be cancelled if two or three or more major operations had been done in a year; but where every trivial ailment is made the excuse for demanding services from the doctor, and change of doctors takes place frequently, we decide that the individuals are either highly temperamental and will always be so, or else that the subscriber does not regard it as a community enterprise where fairness to the other members is a *sine qua non*.

Diagnostic services in some practises are still at a very high figure, and it would appear that

in many cases ancillary services are used to make a diagnosis rather than to confirm a clinical and provisional one. X-rays in pregnancy have become very frequent; the majority are in multipara, where there have been no recorded difficulties at previous confinements, and where there is no evidence of placenta praevia or twin pregnancies. Definite fees were laid down for normal pregnancies, but if I were to pass various extras, such as frequent BMR's, full blood counts, etc., the final cost would be far beyond what was originally intended. Mr. Ilsley is not the only one who is trying to hold the line against inflation.

Sterilization as an elective operation is to be discussed at an early meeting of the medical members of the Board. It developed soon after the beginning of this year. Before that it was very rarely done; in the last eight months there have been twenty-five or more; consultation as to the advisability of it has been very infrequent, and it is being done in conjunction with Caesarian section in multipara with no history of anything but normal child birth.

One in my position gets a very comprehensive view of medical practice; some years ago hyperthyroidism was found or suspected in a large percentage of the population; so widespread was the condition that everyone was urged to take iodized salt; the pendulum has swung to the opposite extreme; a large section of the membership is evidently suffering from hypothyroidism; it bears a resemblance to some skin diseases, you never die of it and you never get better of it; one even finds it in very young female children; the male sex is comparatively free from it.

The form sent to you from time to time asking your opinion as to the liability of the Manitoba Medical Service is important, is carefully considered and often answered at considerable length, for which I say thank you; if you give your reasons we accept your decision in the matter. There are a few who from our experience always answer "Yes" and give no reason. Some of these cases still left us in doubt, and when brought before the Executive Committee have been turned down. The view appears to be taken that if the patient is ill, no matter what the history may show, the Manitoba Medical Service is liable; it should be known by doctors that the application card asks for a report on the health of every subscriber and his or her dependents. We are now introducing a short questionnaire with the idea of making the applicant think before signing.

E. S. Moorhead, M.B.

Fellowships

Life Insurance Medical Research Fund

Eleven additional fellowships and three more grants-in-aid to medical institutions for research in diseases of the heart and of the arteries were announced here yesterday (Wednesday, September 25) by the Life Insurance Medical Research Fund, from its offices in the New York Academy of Medicine Building. The additional awards bring this year's allocation of research funds to nearly \$700,000.

Organized a year ago, the Life Insurance Medical Research Fund is supported by 149 legal reserve life insurance companies in the United States and Canada. All research sponsored by the Fund is devoted at present to the cardiovascular diseases, the single most prevalent cause of death in modern civilization.

With today's announcement of the awards, Dr. Francis R. Dieuaide, Scientific Director, revealed that applications for research fellowships for 1947 will close on January 1, 1947, and for grants-in-aid, on January 31, 1947. Dr. Dieuaide, who is clinical professor of medicine on the staff of the College of Physicians and Surgeons of Columbia University, placed the usual value of fellowships at from \$1,500 to \$2,200 a year for junior fellows and from \$2,500 to \$3,500 for seniors.

The individual postgraduate fellows named today by M. Albert Linton, Chairman of the Fund, and the institutions at which they will conduct research, follow:

Dr. Harwell G. Davis, II, Birmingham, Alabama; Medical College of Alabama. Dr. Charles V. Dowling, New York City; Western Reserve University. Dr. Jerome Gross, New York City; Massachusetts Institute of Technology. Dr.

Harper K. Hellems, Lewisburg, West Virginia; Peter Bent Birgham Hospital. Dr. Jack J. Lewis, Los Angeles, California; Stanford University. Dr. Harold Mankin, New York City; Columbia University College of Physicians and Surgeons. Dr. George E. Murphy, Kansas City, Missouri; Rockefeller Institute for Medical Research. Dr. Hugh Grant Skinner, New Toronto, Ontario; University of Toronto.

Three junior fellowships were announced by Mr. Linton, to students who have not yet completed their work for degrees in medicine or the medical sciences. These were Thomas C. Hall, of Boston, Mass., to work at the Harvard Medical School; Miss Marie Louise Nieft, of Chicago, Ill., to work at the University of Southern California Medical School, and Murray Saffran, of Montreal, Quebec, to work at McGill University.

Grants in aid were awarded to Carnegie Institution of Washington, D.C., for support of research into the embryology of the veins of the brain, under the supervision of Dr. George W. Corner; to McGill University, for support of research towards the development of procedures for heart surgery, under the supervision of Dr. David W. MacKenzie, and to New York University, for support of research towards designing an extremely delicate, sensitive apparatus for measuring the blood pressure in the heart, under the supervision of Dr. Homer W. Smith.

The fellowship awards bring the total number given by the Fund in the first year of its operation to 20, representing \$55,800. The 20 fellows come from 11 states and two Canadian provinces and will engage in medical research at 17 different institutions. Total funds expended for grants-in-aid amount to \$633,591, for a total of 55 research projects.

Microfilm Service

Microfilms of journal articles not on file locally may be obtained from the Army Medical Library, Washington, D.C., U.S.A., of material on file there. There is no charge for this photoduplication service which is "... intended to supplement the services of the local library and not in any way supplant them ..."

All filming is done on special request for the particular article desired. The publication "Current List of Medical Literature" which lists the material received at the Army Medical Library is on file here.

Microfilms will be furnished to individuals requesting them, but the Army Medical Library

prefers that the requests will be sent through a medical library.

For further information enquire at the Medical Library, 29 545.

Free Library Postal Rate for the Medical Profession Within Manitoba

The Medical Library has a reduced postal rate for use on all loans of BOOKS and PERIODICALS mailed to the medical profession residing within the Province of Manitoba. When the borrower receives the loans, all that has to be done, is to SAVE THE WRAPPER, with the LABELS supplied by the library, and follow the instructions thereon. NO POSTAGE need then be PAID.

Doctors Returned to Civilian Practice from Armed Forces

The following doctors have been discharged from the services and are now back in practice.

Name	Address	Telephone
Adamson, Dr. Gilbert L.,	Winnipeg Clinic, Winnipeg	97 284
Adamson, Dr. J. D.,	Winnipeg General Hospital	87 681
Adamson, Dr. J. P.,	Winnipeg Gen. Hosp., Winnipeg	87 681
Alexander, Dr. Walter,	214 Medical Arts Bldg., Wpg.	95 300
Allen, Dr. C. S.,	216 Panama Court, Winnipeg	41 185
Anderson, Dr. Julius,	185 Maryland St., Winnipeg	404 065
Austman, Dr. K. J.,	704 McArthur Bldg., Winnipeg	95 826
Avren, Dr. S. S.,	416 McKenzie St., Winnipeg	59 422
Barrie, Dr. J. G.,	11 Rosewarne Ave., St. Vital	204 643
Baldry, Dr. Geo. S.,	616 Medical Arts Bldg., Wpg.	94 980
Beamish, Dr. R. E.,	216 Medical Arts Bldg., Winnipeg	94 354
Beckstead, Dr. J. L.,	619 Arlington St., Winnipeg	36 272
Bellan, Dr. S.,	400 Aberdeen Ave., Winnipeg	54 679
Bell, Dr. P. G.,	Deer Lodge Hospital, Winnipeg	62 821
Bennett, Dr. Wm. J.,	12 Newhaven Apts., Winnipeg	33 772
Benoit, Dr. C. F.,	114 Claremont Ave., Norwood	202 470
Berger, Dr. M.,	428 Anderson Ave., Winnipeg	58 345
Berbrayer, Dr. Peter,	205 Boyd Bldg., Winnipeg	94 112
Berger, Dr. M.,	428 Anderson Ave., Winnipeg	
Black, Dr. Geo. M.,	325 Washington Ave., Winnipeg	503 054
Bleeks, Dr. Cherry K.,	105 Medical Arts Bldg., Wpg.	93 273
Bottomley, Dr. H. W.,	Winnipeg Clinic, Winnipeg	97 284
Boyd, Dr. D. M.,	Winnipeg Gen. Hosp., Winnipeg	87 681
Boyd, Dr. Wm. J.,	1012 Ingersoll St., Winnipeg	24 427
Brotman, Dr. E. H.,	1137 Portage Ave., Winnipeg	36 500
Brown, Dr. M. M.,	508 Medical Arts Bldg., Winnipeg	93 889
Bruce, Dr. J. D.,	20 Buckingham Apts., Winnipeg	96 780
Bruser, Dr. D. M.,	58 Noble Ave., Winnipeg	
Burch, Dr. J. E.,	Winnipeg Clinic, Winnipeg	97 284
Burgoyne, Dr. F. H.,	Ste. 12 Norwood Ct., Winnipeg	
Cadham, Dr. R. G.,	City Hall, Winnipeg	849 122
Chestnut, Dr. H. W.,	25 Knappen Ave., Winnipeg	
Carleton, Dr. M.,	603 Boyd Bldg., Winnipeg	94 763
Clark, Dr. C. W.,	216 Medical Arts Bldg., Winnipeg	94 354
Colpitts, Dr. Grant E.,	602 Medical Arts Bldg., Wpg.	93 996
Cooper, Dr. Ross H.,	212 Medical Arts Bldg., Winnipeg	93 103
Corrigan, Dr. C. E.,	307 Waterloo St., Winnipeg	401 271
Cohen, Dr. Harvey,	153 Cathedral Ave., Winnipeg	56 007
Cohen, Dr. R.,	600 Boyd Bldg., Winnipeg	93 275
Coke, Dr. L. R.,	238 Spence St., Winnipeg	
Collins, Dr. D. R.,	Internes' Quarters, Winnipeg General Hospital, Winnipeg	87 681
Cram, Dr. J. B.,	409 Power Bldg., Winnipeg	95 165
Croll, Dr. L. D.,	661 Broadwav. Winnipeg	72 138
Daniel, Dr. E.,	Winnipeg General Hosp., Winnipeg	87 681
Davies, Dr. H. L.,	613 Boyd Bldg.	
Davidson, Dr. Kenneth,	6 Medical Arts Bldg., Wpg.	95 683
Davidson, Dr. Allen M.,	1293 Wolseley Ave., Winnipeg	33 822
Davidson, Dr. A. M.,	6 Medical Arts Bldg., Winnipeg	95 683
Dexter, Dr. P. H.,	283 Magnus Ave., Winnipeg	59 183
Dennis, Dr. F. T.,	Deer Lodge Hospital, Winnipeg	64 861
Doupe, Dr. J.,	592 Stradbroke Ave., Winnipeg	46 501
Downey, Dr. J. L.,	333 Bartlett Ave., Winnipeg	46 751
Drulak, Dr. Stephen,	965 Garfield St., Winnipeg	27 577
Easton, Dr. S.,	216-7 Curry Bldg., Winnipeg	26 477
Edwards, Dr. K. N.,	139 Girton Boulevard, Tuxedo, Man.	
Eggertson, Dr. S. H. O.,	919 Palmerston Ave., Wpg.	
Elliott, Dr. M. R.,	140 Lawndale Ave., Norwood	204 394
Elvin, Dr. Norman L.,	314 Medical Arts Bldg., Wpg.	95 317
Eshoo, Dr. H.,	Misericordia Hospital, Winnipeg	37 035
Evoy, Dr. G. H.,	264 Edmonton St., Winnipeg	94 335
Fahrni, Dr. G. P.,	105 Medical Arts Bldg., Winnipeg	93 605
Fahrni, Dr. Gordon S.,	105 Medical Arts Bldg., Wpg.	93 273
Fairfield, Dr. G. C.,	Portage la Prairie, Man.	
Farr, Dr. John,	Winnipeg Clinic, Winnipeg	97 284
Feinstein, Dr. M. S.,	72 Harrow St., Winnipeg	46 001
Feldsted, Dr. E. T.,	Winnipeg Clinic, Winnipeg	97 284
Flett, Dr. R. O.,	203 Medical Arts Bldg., Winnipeg	92 934

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● Recent clinical studies reveal that the usual conceptions of "bulk" in laxation are not applicable to the action of Kellogg's All Bran in the colon. The cellulosic content of bran supports the action of symbiotic intestinal flora. This apparently provides emulsified occluded gas to help produce soft, spongy wastes for easy elimination.

It is now evident that All-Bran does not create "bulk" by soaking up water and, therefore, it produces no unusual colonic distension. It does not sweep out. The particle size of Kellogg's All-Bran, and the degree of laxation, have no discernible correlation. Even when ground to an impalpably fine powder, All-Bran retains its laxative characteristics.

The fact that daily consumption of All-Bran does not interfere with normal digestion is borne out by recent research, from which this and other conclusions made above have been summarized. Reprints covering this research are available upon request by writing to: Kellogg Company of Canada, Ltd., London, Ontario.

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¹ Clinic Reports, Planned Parenthood Services in the United States: Human Fertility 10: 25 (Mar.) 1945.

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Name	Address	Telephone
Franks, Dr. Fred,	492 Mountain Ave., Winnipeg	
Fryer, Dr. A. I.,	5 Gloucester Apts., Winnipeg	30 576
Furman, Dr. M. J.,	463 Ash St., Winnipeg	403 505
Gray, Dr. Archie G.,	St. Boniface Hosp., St. Boniface	201 121
Galloway, Dr. G. D.,	74 St. Mary's Rd., Norwood	
Gemmell, Dr. J. P.,	Winnipeg Clinic, Winnipeg	97 284
Guenther, Dr. H.,	315 Nairn Ave., Winnipeg	504 086
Gordon, Dr. Athol R.,	505 Medical Arts Bldg., Wpg.	96 232
Govan, Dr. W. R.,	Abbott Clinic, 409 Power Bldg., Winnipeg	95 165
Green, Dr. P. T.,	201 Hampton St., St. James, Man.	61 622
Greenberg, Dr. L.,	901 Boyd Bldg., Winnipeg	95 205
Guest, Dr. W. C.,	151 Yale Ave., Winnipeg	
Hall, Dr. C. W.,	1328 Pembina Highway,	
Hamilton, Dr. Glen F.,	408 Medical Arts Bldg., Wpg.	93 846
Harvey, Dr. A. L.,	Victoria Hospital, Winnipeg	42 351
Hastings, Dr. D. J.,	634 Somerset Bldg., Winnipeg	98 727
Hayter, Dr. F. W.,	Deer Lodge Hospital, Winnipeg	64 861
Hart, Dr. W. J.,	185 Kelvin St., Winnipeg	
Helgason, Dr. R. E.,	Glenboro, Man.	
Henneberg, Dr. C. C.,	302 Medical Arts Bldg., Wpg.	92 710
Hitesman, Dr. R. J.,	512 Medical Arts Bldg., Wpg.	94 808
Hillsman, Dr. J. A.,	308 Medical Arts Bldg., Winnipeg	97 329
Holland, Dr. T. E.,	203 Medical Arts Bldg., Winnipeg	96 948
Homik, Dr. A. M.,	612 Cathedral Ave., Winnipeg	
Houston, Dr. A. B.,	937 Warsaw Ave., Winnipeg	45 925
Hunter, Dr. H. B. M.,	Deer Lodge Hospital, Winnipeg	64 861
Huot, Dr. J. M.,	St. Boniface Sanatorium, St. Vital	201 191
Ireland, Dr. J. R.,	Deer Lodge Hospital, Winnipeg	64 861
Israels, Dr. S.,	701 Boyd Bldg., Winnipeg	97 223
Jacks, Dr. Q. D.,	410 Medical Arts Bldg., Winnipeg	95 309
Jauvoish, Dr. S.,	206 Boyd Bldg., Winnipeg	93 240
Johnstone, Dr. Gordon A.,	Winnipeg Clinic, Winnipeg	97 284
Jones, Dr. E. A.,	Ste. 5, 117 Bryce St., Winnipeg	43 283
Kasian, Dr. P.,	St. Joseph's Hospital, Winnipeg	57 211
Kiernan, Dr. M. K.,	Winnipeg Gen. Hosp., Winnipeg	87 681
Kilgour, Dr. J. M.,	Winnipeg Clinic, Winnipeg	97 284
Kippen, Dr. D. L.,	Winnipeg Clinic, Winnipeg	97 284
Klass, Dr. A. A.,	132 Matheson Ave., Winnipeg	55 022
Kobrinsky, Dr. Sam,	602 Medical Arts Bldg., Wpg.	95 875
Kobrinsky, Dr. Sydney,	505 Boyd Bldg., Winnipeg	93 912
Kobrinsky, Dr. M. T.,	968 Strathcona St., Winnipeg	71 498
Lazareck, Dr. T. L.,	616 Aberdeen Ave., Winnipeg	53 674
Leach, Dr. W. B.,	150 Alloway Ave., Winnipeg	71 921
Leishman, Dr. J. D.,	400 Power Bldg., Winnipeg	96 234
Lebbetter, Dr. T. A.,	Winnipeg Clinic, Winnipeg	97 284
Lerner, Dr. A. I.,	211 McIntyre Bldg., Winnipeg	96 961
Loadman, Dr. B. E.,	Ste. 14A Pullmer Apts., Wpg.	43 601
Lotimer, Dr. L. E.,	Winnipeg Clinic, Winnipeg	97 284
Lund, Dr. P. C.,	Deer Lodge Hospital, Winnipeg	62 821
Ivons, Dr. R.,	420 Niagara St., Winnipeg	404 009
MacDonald, Dr. Frank S.,	616 Med. Arts Bldg., Wpg.	92 800
MacDonnel, Dr. J. A. K. (lady),	Winnipeg Clinic	97 284
MacKinnon, Dr. W. B.,	661 Broadway, Winnipeg	72 138
Maclean, Dr. N. B.,	"A" Brantford Apts., Winnipeg	
Maclean, Dr. Ian S.,	Winnipeg Clinic, Winnipeg	97 284
MacLeod, Dr. J. W.,	Winnipeg Clinic, Winnipeg	97 284
Malkin, Dr. S.,	701 Boyd Bldg., Winnipeg	97 223
Malone, Dr. M. C.,	St. Boniface Hosp., St. Boniface	201 121
Margolis, Dr. J.,	1897 Portage Ave., St. James	
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